

THE DENTAL DIGEST

Vol. XXXIV

NOVEMBER, 1928

No. 11

How to Make Porcelain Jacket Crowns*

By O. J. Chase, Jr., D.D.S., and W. A. Squires, D.D.S., New York, N. Y.

A porcelain jacket crown is indicated in the following cases:

- (1) For incisors in which the two incisal angles have been lost.
- (2) Wherever a single crown restoration is necessary.

In such cases the porcelain jacket crown is preferable, because:

- (1) A metal crown may render the tooth sensitive to heat and cold.
- (2) In many of the molars the shoulder can be cut without going too deep and the porcelain crown will look better and afford better protection than any other crown.
- (3) It is nearer to the ideal restoration.

The technic required to make porcelain jacket crowns is so exacting and time-consuming that it often proves to be tedious for both dentist and patient. A good deal of time and patience is required to master the technic of making such crowns, and it should be mastered out of the mouth. It has been found desirable to teach students that unless an exact technic is mastered and followed, the results of efforts to make jacket crowns will be unsatisfactory to both patient and dentist. For simple cases the preparation of the tooth, the taking of the impression and the bite, and the making of a temporary covering for the tooth will probably consume at least two hours, after the technic has been well learned.

The intention in most jacket crown work is to remove all of the enamel from the natural tooth and replace it with porcelain. The ideal preparation would be to remove only the enamel, make a narrow shoulder in the dentin one millimeter apically to the gingival margin, and then make the crown over the tooth as thus prepared. Perhaps the most common fault in the effort to effect such preparation is cutting too deep into the dentin.

The first step in diagnosis is to obtain a radiogram of the tooth which will show the size and the form of the pulp. This is especially important in young patients, where the pulp is very large. Teeth with

* Report of a joint clinic before the First District Dental Society, New York, December 7, 1926.

long cusps have long pulpal horns. If the tooth is pulpless, the radiogram will show the condition of the canal and the periapical area, as well as the condition of the adjacent teeth. It can then be determined whether or not a restoration of this kind is practicable.

It is well to take a snap impression with compound and make a model, note the condition of the tooth itself and the relation of the adjacent teeth. This model is often an aid in the later work of making the restoration.

FIRST STEP

GRINDING THE INCISAL EDGE FOR CLEARANCE

Suppose, for example, that a porcelain jacket crown is to be made for a maxillary central incisor. The first step in preparation is to grind the incisal edge of the tooth so that the ground surface will be at right angles to the line of stress from the opposing teeth. The extent to which the incisal edge should be ground in individual cases can be learned only by experience, because the amount of grinding will be greatly influenced by the age of the patient and the type of the tooth. There must be room for a sufficient quantity of porcelain on the incisal edge of the finished crown. The beginner is almost sure to grind away too much of the tooth. It is not necessary to grind away more than $1\frac{1}{2}$ millimeters of the tooth. In cases where the tooth is shortened by attrition, the strength of the porcelain crown may be greatly increased by making a mesio-distal groove along the incisal edge of the tooth after the preparation is otherwise complete.

SECOND STEP

PREPARATION OF THE APPROXIMAL SURFACES

With a $\frac{7}{8}$ -inch separating disc, cut away one millimeter from the mesial side of the tooth and one millimeter from the distal side. This will take off the approximal bulge on each surface and will remove practically all of the approximate enamel. Care should be taken not to form a shoulder with this first cut. Hold the disc so that the surfaces formed by this cut will be, in general, parallel to the long axis of the tooth but will converge slightly toward the incisal edge. The other direction of the disc should be such that these surfaces will converge slightly toward the lingual. Beginning with the first cut, and continuously while using either discs or stones, water about as hot as the patient can bear should be applied to the tooth by means of a syringe. (Fig. 1.)

THIRD STEP

SCORING THE ENAMEL

With a mounted, knife-edged carborundum stone three or four



Fig. 1



Fig. 2

Fig. 1
Incisal edge ground for clearance.

Fig. 2
Scored enamel.

millimeters in diameter, score the enamel on both the labial and the lingual surfaces vertically and horizontally, as shown in Fig. 2. These scoring marks should be less than a millimeter apart. These marks must extend through the enamel, but must not go into the dentin.

From this point on it is necessary to control the pain. In some patients this can be satisfactorily controlled by the continuous application of hot water to the tooth. For other patients it is necessary to make an injection. If an injection for infiltration anesthesia is made before the enamel is scored, the anesthesia will pass away before the operation is completed. The careful preparation of a maxillary central, such as is used here for illustration, may require two hours. In the preparation of maxillary posteriors and of all mandibular teeth block anesthesia is indicated.

FOURTH STEP REMOVING THE ENAMEL

The beginner may find it difficult to remove the heavy enamel of the

mesial and incisal thirds of the lingual and labial surfaces with cleavers. This enamel may be removed with stones, care being taken not to grind into the dentin. The thinner enamel of the cervical thirds will be found easier to remove with cleavers, and when sufficient skill has been developed, all the enamel may be removed in this way if the operator desires. When using cleavers, great care must be taken not to wound the soft tissues nor to cut grooves in the dentin. After all the enamel has been removed, the tooth will appear as in Fig. 3.



Fig. 3
Tooth with enamel removed.

FIFTH STEP FITTING THE BAND

The tooth is now ready for the operator to fit a seamless copper band. These bands come in twenty different diameters and two lengths. Select a band of a diameter which accurately fits the tooth. The longer of the two lengths is preferable. Before fitting the band, anneal it by heating it and dropping it into alcohol.

Trim the cervical margin of the band to fit the festoon of the gum. It will be desirable to know when this band has been pushed far enough

under the gum to pass the point where the shoulder will be made, but it must not impinge upon the peridental membrane. If a line is inscribed on the outer surface of the band parallel to the festoon and about $1\frac{1}{2}$ millimeters incisally from it, the band will usually be in the right position when this line is at the margin of the gum. As an additional precaution against forcing the band too far cervically, wings may be cut on the mesial and distal surfaces to rest on the incisal edges of the adjacent teeth, as in Fig. 4.

This line will be valuable to the operator in three ways: (1) it will show when the cervical margin of the band has passed the point where

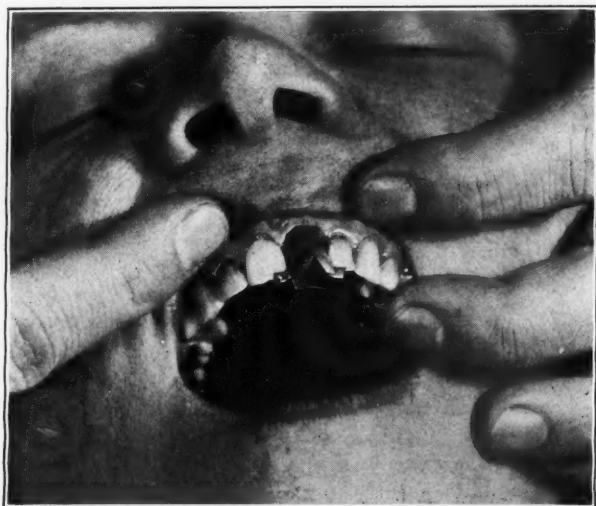


Fig. 4
Band fitted to tooth.

the shoulder is to be made; (2) it will help the operator guard against pushing the band up to impinge on the peridental membrane; (3) when it is at the gum level all the way around, it will aid dentists to guard against tipping the band out of line.

It is very important to avoid distortion of the band after it has been fitted. The best way to avoid this is to fill the band with modeling compound. To do this, heat a little modeling compound over a flame and with the fingers form a roll a very little smaller in diameter than the band. Pass this clear through the band. Then hold the festooned end of the band over the flame to soften the projecting compound further. Smear the thumb with cocoa butter and press it upon the

projecting compound in such a way as to fill the band and perhaps squeeze a little compound out between the thumb and the festoon. This method seems to be better than that of whittling compound and forcing it into the band, but care must be taken not to change the form which was given the band by the tooth.

SIXTH STEP CUTTING THE SHOULDER

The shoulder should not be over half a millimeter deep, as illustrated in Fig. 5. It should be defined first on the mesial and distal



Fig. 5
The prepared shoulder.

surfaces. This can be done best by using a $\frac{7}{8}$ -inch thin, true-running carborundum disc. There is a great difference in such discs. Some are much thicker than others and wobble a little, and this apparently slight variation may be sufficient to ruin the preparation.

There are different methods of holding the handpiece while making this cut, but the "thumb-and-palm grasp," illustrated in Fig. 6, will be found most satisfactory. In making these cuts it is important that the instrument be under perfect control. The "pen grasp" does not

permit sufficient control of the handpiece to avoid making wrong cuts and lacerating the tissues. The "thumb-and-palm grasp" makes it possible for the operator to place his thumb upon the tooth in such way that he has practically complete control of the instrument at all times.

In beginning to form the shoulder on the mesial and distal surfaces the disc should be parallel to the mesial and distal surfaces as they have already been ground. If, when forming the shoulder, the disc is turned a little to the lingual and then a little to the labial, without changing

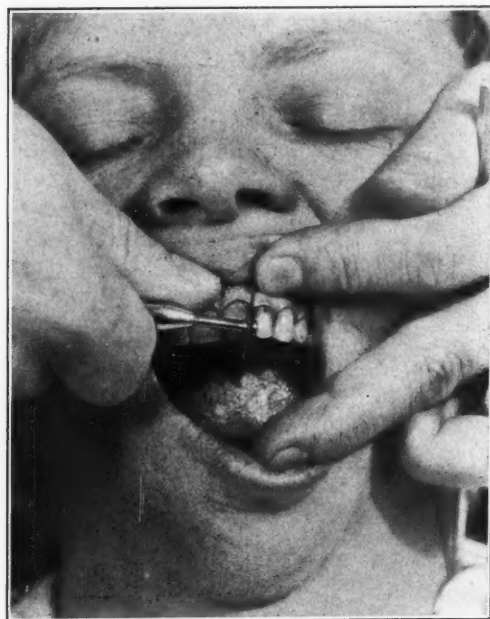


Fig. 6
The "thumb-and-palm grasp."

its vertical position, the shoulder will be lengthened. Beginners in this form of work usually find it difficult to form the shoulder at the angles of the tooth, and turning the disc in this way helps to do this. From the points where this formation of the shoulder ceases the shoulder is to be formed by the use of a No. 56 straight fissure bur.

Since the ideal formation in most cases is to remove all the enamel and then form only a slight shoulder, the angle at which this bur is held becomes very important. If the bur is held at too great an angle

to the portion of the surface where the shoulder is to be formed, an undercut will result. This should be avoided, because the impression will then be distorted and the finished crown will either not fit or be broken in the effort to seat it. The ideal condition is that in which the shoulder is of equal depth all around the tooth. In a maxillary central, which is here used for illustration (Fig. 7), this is usually possible, but there are teeth in which it is not possible, as, for instance, on the mesial surface of a maxillary first bicuspid, which is deeply concave.

The most desirable location for the shoulder may be greatly influ-



Fig. 7
Forming the shoulder.

enced by the position of the festoon on the gum. When this is in the ideal position, the shoulder on a maxillary central incisor should be located about one millimeter below the free margin of the gum. Beginners in porcelain jacket crown work will do well to locate the shoulder first on a level with the free margin of the gum and, when it has been completed in that position, to carry it one millimeter below the margin of the gum by the use of an end-cutting bur. The shoulder should then be smoothed by the use of a straight No. 10 chisel.

SEVENTH STEP

TAKING THE IMPRESSION

Dry the tooth carefully with cotton rolls, followed by a little phenol, then warm alcohol and finally Callahan's resin solution, made by dissolving 12 grains of resin in two grams of chloroform. Slightly lubricate the tooth with vaseline and it will be ready for taking an impression, as in Fig. 8.

Heat the band until the compound which fills it is soft all the way



Fig. 8
Lubricating the tooth.

through and temper it in water at a temperature of about 150° F. Grasp the band with the thumb and finger on the labial and lingual surfaces, center it over the prepared tooth and push it up until the margin of the band just passes below the free margin of the gum. Withdraw it without chilling. Observe whether the band has been properly centered. If the finger is held over the end of the band when pressing it upward, too much compound may be forced under the gum.

If compound has been forced over the cervical margin of the band, it should be trimmed away with a sharp knife.

The band is now heated in the same manner as before, tempered in hot water, placed upon the tooth and carried cervically until the line parallel to the festoon is at the free margin of the gum. The thumb is then placed over the end of the band and the compound is compressed. It is then chilled and removed. (Fig. 9.)

EIGHTH STEP

MAKING THE MODELING COMPOUND JACKET CROWN

Soften some modeling compound over the flame and form a roll a little longer than the tooth, perhaps $\frac{1}{2}$ inch long in all, and of a little greater diameter than the widest part of the tooth. Soften about half the length of this roll or a little more, leaving the other part hard.

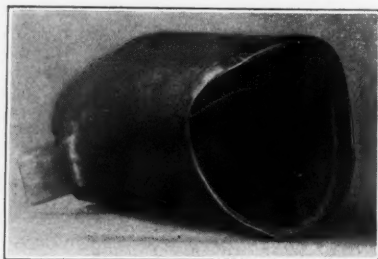


Fig. 9
The impression.

Press this onto the tooth and, with the fingers and a wax spatula, shape it over the tooth so that it fits the shoulder accurately. Remove it from the mouth, chill it and shape it into the form of a crown. It is important that this compound crown should establish the same contacts with the adjacent teeth as the finished crown will have. If the cervical margin of the compound is not sharp and definite, as it will be if it fits the shoulder perfectly, a narrow line of wax may be run just inside the cervical margin with the aid of a hot wax spatula. If the crown is then pressed to place, a perfect fit results. Chill it in position.

NINTH STEP

TAKING THE IMPRESSION OF THE ANTERIOR TEETH

In making a crown for a maxillary central, such as is here used for illustration, it is desirable to take a split impression of the six maxillary

anterior teeth. This should be taken with a modeling compound which softens at a lower temperature than that used for making the modeling compound. Form such compound into a roll about $\frac{1}{2}$ inch in diameter and long enough to reach from one cuspid around the lingual sides of the teeth to the other cuspid. The surface of this roll which is to come into contact with the teeth should be soft, but the other side of it should be hard, to act as a tray or support. Beginners often make the mistake of softening the roll all the way through, in which case the impression will lack sharp definition. The surface of this roll may be put in very fine condition to take the impression by the use of a Tench mouth blow-pipe such as the prosthetists use for softening compound surfaces for impression-taking. When the compound has been properly softened and tempered in water, make the impression and chill it in position. Remove it from the mouth and trim it so that it extends vertically downward from the incisal edges of the teeth but does not extend over onto the labial surfaces. Cut two vertical notches in the vertical surface, one near each end, to help form locks. With cocoa butter lubricate the surface of this impression which will be in contact with the teeth or with the other half of the impression when it is taken.

Hold the lingual half of the impression firmly in place. Soften a roll of compound of about the same length and thickness as was used for the lingual half of the impression, in the same manner, and apply it to the labial surfaces of the teeth. Chill it in position and remove the labial half of the impression. Before disturbing the lingual half of the impression, chill it and the modeling compound crown with ice water. Remove the lingual half of the impression and then the modeling compound crown. Try the modeling compound crown into each half of the impression to see which half fits better. Place it in that half and bring the other half gently into position. Seal the two portions of the impression together with a hot spatula.

TENTH STEP

TAKING THE BITE

Take a bite in baseplate wax in the usual manner.

ELEVENTH STEP

SELECTING THE SHADE

The shade guide to be used is that which the dentist would prefer to use for the selection of artificial teeth. For a maxillary central, match the shade of the adjacent central. For a maxillary lateral, match the other lateral. For the purpose of obtaining the desired shade the dentist should learn to divide the tooth to be matched visually into two parts and preferably into three, the cervical, mesial and incisal thirds.

The color of the cervical third should be matched with the lip when it is raised high. The color of the incisal third should be matched with the lip covering at least the cervical portion of the tooth, because if the color of the incisal third is matched with the lip all the way up, the incisal edge of the crown will usually be found to be of too light a shade. The color of the mesial third of the tooth is usually a result of the blending of the dentin and enamel colors in that tooth. In some teeth the break between these colors is very distinct, in others it is very gradual. It is desirable to get different lights upon the tooth to match. This may be done by matching the tooth with the patient facing the light and again with the patient turned away from the light. If a sample tooth can be found which is satisfactory in all these positions, the crown that matches it will usually be found satisfactory.

TWELFTH STEP

PROTECTING THE PREPARED TOOTH

Dry the prepared tooth carefully, swab it with a little phenol, followed by warm alcohol and resin in chloroform. Make a temporary crown of baseplate gutta-percha. This must fit accurately and be smooth enough about the cervical margin not to distort or irritate the gum tissue. Just before cementing the gutta-percha crown in place, lubricate the tooth with vaseline so that the cement may be easily removed at the next sitting. This gutta-percha crown may be most easily removed by inserting the point of a hooked scaler into the labial surface about two-thirds of the way from the incisal edge toward the gum and pulling firmly downward.

Dr. Chase: 140 West 57th Street.

Dr. Squires: 115 Broadway.



Dr. Wilson and the Reconstruction of Enamel

By J. Leon Williams, D.D.S., L.D.S., New York, N. Y.

Dr. Lyman A. Wilson's article in the October issue of *The Dental Digest* under the title *Is the Artificial Calcification and Recalcification of Dental Enamel Possible?* contains a proposition that should be of the most vital interest to the dental profession and the public.

If the possibility of the recalcification of defective enamel can be established beyond all question, a new era has dawned for dentistry and a reason for profound thanksgiving presented to the world. Every encouragement, therefore, should be given Dr. Wilson to establish his claims by irrefutable scientific evidence. I shall make the attempt in this short article to define the problem a little more clearly than has heretofore been done and to point out certain phases of evidence, not yet presented, which seem to me necessary to an acceptance of the claims Dr. Wilson is making.

The first feature of the problem to be settled is the nature of the process itself. Is the process a vital or a chemical one, or some sort of combination of both? Of course, an attempt can be made to dodge the issue by saying that all vital or physiological phenomena are, in the last analysis, due to chemical action, but we can avoid that sort of logic-chopping by asking the simple question—is the appearance of the white spots in enamel described and illustrated by Dr. Wilson due to abstraction of mineral matter by some vital action of the pulp, as claimed by Dr. Bodecker and others, or is it due entirely to the surface action of acids formed in the mouth? And is the recalcification of these white spots due to pulpal action or to external chemical action as the result of affinity between some of the end-products of physiological action found in the saliva? Inasmuch as the phenomena produced by experiments on extracted teeth seem indistinguishable from the appearances seen in living teeth, the vital theory might on this ground be ruled out without further discussion.

But there is another and intimately related phase of this whole problem which cannot be so summarily disposed of. I refer to the theory that there are marked differences in the hardness and softness of different teeth *regardless of age*, that these differences appear at different times in the same mouth, and that they are due to fluctuations in the relations of the organic and mineral contents of the enamel, which fluctuations are the result of vital action through the pulp. What evidence have we that quantitative variations in the organic and mineral substances of enamel ever occur? All real scientific evidence on this point is against this view. We have the analyses of Black and Tomes, conducted quite independently, showing that any differences in the

mineral contents are quite negligible. No analysis of enamel has ever been made, so far as I know, which questions these findings.

And now comes the report of the investigation of Messrs. Sprawson and Bury *On the Chemical Evidences of the Organic Content of Human Enamel* recently published in the Proceedings of the Royal Society of Great Britain. And this report completely confirms, from the point of view of the *organic* contents of enamel, the findings of Black and Tomes with reference to the inorganic contents. The differences in teeth of different ages and from different individuals are so slight as to be purely negligible. I have not read the entire paper, but I herewith append the abstract as published in the September issue of *Oral Topics*.

A New Light on Dental Caries

The recent paper* by Messrs. Sprawson and Bury, read before the Royal Society, has a considerable bearing on some of the hypotheses put forward of late years in explanation of the cause and incidence of dental caries.

Exact Chemical Tests

These authors, using exact chemical tests not previously applied to this work and using the enamel of milk teeth, young permanent teeth and adult teeth (from people over fifty years old), find that the organic content is the same in all cases, with but very small variations in the different samples tested. The total nitrogen and carbon were estimated after the elimination of CO₂ and were found to agree approximately with the ratio of these substances found in protein. The nitrogen was estimated colorimetrically by means of Nessler's solution; this test will indicate the presence of 0.000005 gram of nitrogen, which in a sample of enamel weighing 0.4 gram gives a sensitivity of 1 per 80,000, or a percentage of 0.00125 of nitrogen. The maximum amount of protein present, calculated from the highest amount of the nitrogen content, was 0.15 per cent; the minimum was 0.14 per cent. The findings of sixteen samples are recorded.

Indications that Enamel is Practically an Inert Substance

These findings must cause much thought to those who write of the "vital resistance" of enamel; of the occasional abstraction of calcium salts from it to make up calcium deficiency in other parts of the body, and of the redeposition of calcium salts in enamel in periods of calcium plenty. They would seem to indicate that enamel once formed is almost if not quite a fixed substance; that no accessory food factor can produce an "immunity" to dental caries or that the metabolism can have any effect upon it; that it is, in fact, practically an inert substance.

Dental Caries Arises from Causes External to the Teeth

Indeed, these findings can only serve to emphasize the belief already held by the vast majority of thinking dental surgeons that dental caries arises from causes external to the tooth altogether, these causes being the retention of foodstuffs in contact with the teeth, owing to the character of the foods as used in present-day civilized communities.

* *On the Chemical Evidences of the Organic Content of Human Enamel.* By Evelyn Sprawson, M.C., L.R.C.P.Lon., M.R.C.S., L.D.S.Eng., and Frank W. Bury, M.Sc., Vict., A.I.C. Proceedings of the Royal Society, B, Vol. 102, 1928.

A Disease of Civilization

Dental caries is, it is known, more or less a disease of civilization; it is also known that carbohydrate is the only food which civilized man takes in forms essentially different from those taken by savages and wild animals; that as civilized man takes it, it is the only food which can lodge in the natural pits and crevices of the teeth and produce an acid (lactic) fermentation in the mouth.

That enamel can fairly readily be decalcified and that the first stage of dental caries is one of decalcification is known too; it is therefore only logical to conclude that lactic acid, formed in contact with the teeth, decalcifies the enamel and so starts the carious process.—*Public Health*.

The mere fact that this paper was presented before the Royal Society and published in its Proceedings is a guarantee that it is a notable piece of work. Its accuracy cannot be questioned unless the results of an equally notable production are offered in disproof.

What, then, have we to say in explanation of this discrepancy between scientific evidence and a widespread belief founded on clinical observation? The only explanation I can suggest is the one I have already offered as mentioned by Dr. Wilson, namely, that there may be a fluctuation in what I have called *molecular grip* or some molecular rearrangement which might occur without the addition or subtraction of any material, similar to effects we see in cements. But our first business, if we claim to have a scientific attitude of mind, is to accept scientific facts and, if there is an apparent discrepancy between facts and observed phenomena, to wait patiently for the additional facts which will resolve the seeming contradiction.

The present scientific evidence, then, all indicates that there are no fluctuations in the relation of organic and inorganic matter in human enamel, and that the mineral matters of the enamel of erupted teeth are not subject to removal and replacement by any physiological or vital process from within. And this brings me to a criticism of one of Dr. Wilson's statements. After saying that Drs. Head, Pickerill, Bunting, Rickert and Bodecker are "all arrayed against Dr. Williams's theory of chemical affinity," a statement which begs the whole question under discussion, Dr. Wilson goes on to remark: "However, it is not the intention of the writer to controvert or take issue with any of the opinions quoted, but rather to augment and strengthen their hypotheses and say that posteruptive calcification does occur, that it is a *physiological function* (italics are mine) and that it can be and has been accomplished artificially in cases where the physiological function has failed."

As I have already intimated, I should like to know if it is Dr. Wilson's idea that a physiological function, alleged to take place in the mouth in a living tooth, can be practically identical with purely chemical phenomena which take place in a dead tooth out of the mouth.

If, as the result of purely chemical phenomena, the mineral substances may be removed from the enamel of a dead tooth, out of the mouth, and restored under like conditions, why may we not speak of the same phenomena as purely chemical when they take place in the mouth? If I confine a drop of lactic acid on a surface of the enamel of a living tooth in the mouth and the enamel at that point becomes etched and turns white, would Dr. Wilson describe that as chemical or physiological action? I am trying to clear away what seems to me a deep-seated mental confusion concerning this whole problem, because sooner or later in the discussion every aspect of the problem comes back to this question of chemical *versus* physiological action as an explanation of caries of enamel.

As an illustration of this mental confusion mention may be made of the expression *resistance to decay* in daily use among dentists. The implication of course is that some teeth resist decay and others do not. Resistance to decay means resistance to the action of lactic acid, and the term has no other legitimate meaning. Do those teeth which do not decay "resist" the action of lactic acid, or do they remain sound because the destructive lactic acid is not present? Has any one ever found a tooth so "resistant" that lactic acid would not rapidly destroy the surface exposed to its action? Has any one any evidence that the "least resistant" tooth would ever decay in the complete absence of acids? Are we not, then, forced by all the evidence we have to conclude that "resistance" to decay means simply absence of acids? It seems most unfortunate to me that it is necessary to state and restate over and over again these fundamental truths about caries of enamel.

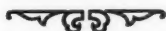
If this effort to restate the problem once more has made it a little clearer, we may come back to a more detailed examination of Dr. Wilson's propositions. If I understand Dr. Wilson rightly, he accepts the view that white spots shown in his photographs are caused by an acid; that the peculiar appearance is due to the removal of the inter-rod or cement substance, and that recalcification of this cement substance will take place if the constituent elements of enamel are present in the saliva and certain other necessary conditions also are present. Now, I have not the slightest objection to this as a working hypothesis. It is now simply a question of the accumulation of sufficient scientific evidence to establish thoroughly the truth of the hypothesis. As a matter of fact, for a number of years I have privately urged the use of dissolved enamel as a tooth-paste for daily use with the object of determining whether some sort of a deposit might take place in those areas of enamel, in the early stage of caries, where the cement substance has been somewhat destroyed but before the surface has commenced to break down. But I have always been confronted with one discouraging feature of the proposition. In all cases where lactic acid is being freely formed

beneath bacterial plaques—and aside from the cases cited by Dr. Wilson, these are the only ones calling for such treatment—will the redeposit of new enamel take place more rapidly than the destructive action of the acid? Or, if recalcification is once completed and there should be an increase of acidity, should we not have to begin all over again? In other words, is not the acid problem really of enormously greater importance than the recalcification problem? It seems so to me. If we could through a change in food habits or by any other means prevent the formation of lactic acid, we should never need concern ourselves about recalcification. But, in the absence of any discovery limiting or inhibiting the formation of bacterial plaques and lactic acid, let Dr. Wilson go on with this work. Experimentation is the only solid basis for discovery. But the more scientific our experimenting, the more we take *all* the known facts into consideration, the greater the chance of making important discoveries.

I suggest that an immediate attempt should be made to show by microscopic examination of extracted teeth, treated according to Dr. Wilson's methods, exactly what takes place in these recalcification processes. Such a demonstration should not be difficult for an expert in this work. I greatly regret that failing health debars me from attempting it. But I have already demonstrated one aspect of the problem. I have shown by many photomicrographs just what the appearances are in all stages of the removal of the cement substance by the acid of decay, and also what the appearances are when there has been faulty deposit of the cement substance.

It now remains only to show exactly what the appearances are when the decalcified areas have been refilled. I can think of no more fascinating undertaking in dental microscopical work than this. If there is in the dental profession some small fraction of an interest in finding out the truth that there is in talking theories, there should be no lack of helpers in this work. A good beginning could be made by starting treatment in those regions where mottled enamel is prevalent. Dr. McKay, who has made this subject his own and knows much more about it than any one else, would, I have no doubt, contribute his knowledge and assistance to such an undertaking. If it is possible to restore lost or wanting cement substance in enamel, here is the golden opportunity for the work. Thousands of children now disfigured for life would rise up and call the man blessed who could restore their teeth to a normal condition.

160 Riverside Drive



The Rise and Fall of Oral Hygiene In Bridgeport

By George Wood Clapp, D.D.S., New York, N. Y.

ELEVENTH ARTICLE

THE DENTAL CLINIC AS THE GREATEST POTENTIAL SOURCE OF WEALTH IN BRIDGEPORT

If we accept the *Encyclopedia Britannica's* definition that wealth consists of all consumable utilities which require labor for their production and can be appropriated and exchanged, let us see if we cannot show that the dental clinic in Bridgeport, from 1914 to 1924, was a great potential source of wealth.

PEOPLE NECESSARY TO THE PRODUCTION OF WEALTH

The ultimate requirement in the production of wealth is the presence of intelligent, educated, ambitious and moral people who have the power to develop the raw materials which nature provides. If the people cease to mine and to produce minerals and to grow the textile materials, these things will cease to constitute wealth.

HEALTH AS A FOUNDATION-STONE FOR THESE QUALITIES

It can be clearly shown that health forms the most desirable foundation for the effective exercise of intelligence, knowledge, ambition and character. Experience shows this to be true in our own lives, and observation confirms it as to the lives of others.

HOW THE FIRST SCHOOL DENTAL CLINIC MADE INCREASES IN THESE FUNDAMENTAL QUALITIES POSSIBLE

In December, 1910, Dr. Ebersole, as Chairman of the Oral Hygiene Committee of the National Dental Association, obtained from a group of dental manufacturers three thousand dollars with which to carry on, in a Cleveland school and with the aid of the Cleveland Dental Society, a demonstration of what oral prophylaxis and repair and proper instruction would do for dentally sick children. Forty children in the Marion School were selected by the teachers to form what became known as the *Marion School Dental Squad*; of these twenty-six were faithful to the end of the experiment. These children were physically below par, each of them had from five to twenty-five cavities in his teeth, all were constipated and many were ill-nourished. The mouths were cleaned, the cavities filled, they were taught home oral care and a few principles of sound diet.* They were from one to four years behind the school grade proper for their ages, and many of them were losing even more

* Nothing was then known about the deficiencies in refined flour or the serious consequences of the extensive use of refined sugar.

ground. In every case the health improved in a seemingly miraculous manner.

Intelligence tests were conducted at intervals to determine whether the visible physical improvement was accompanied by an increase in intelligence. Do not confuse intelligence with knowledge. Intelligence may be defined as the native horsepower of the mind, that is, its ability to do things, and knowledge as what the mind accumulates by doing. The purpose was to find out not whether they had learned more, but whether they were more capable of learning. The twenty-six pupils who were faithful unto the end showed an average increased mental power of 37.44%.

Take the most outstanding example among them, M. K., aged 10, in the fourth grade, suspected of being degenerate. As he returned to health under the influence of what was done for him, he improved 66% in power of memory, 52% in power of spontaneous association, 16.5% in power of addition, developed almost from nothing the power of association by opposites so that he improved 820% in that particular, and improved 66% in quickness and accuracy of perception.

The two pupils who recorded the least gain in the intelligence tests showed gains in their average grades as high as 19%.

The forty children chosen to form the Marion School Dental Squad were selected not by dentists because they had the worst mouths in a school where nearly all mouths were bad; they were selected by the teachers because they were morally delinquent—insubordinate, truant, veritable “thorns in the flesh.” As health returned under the ministrations of the dental clinic and more hygienic methods of living, the insubordination disappeared, truancy practically ceased, and, in some cases, teachers came to rely on these pupils as valued helpers. Under proper dental service intelligence, knowledge and ambition increased and character improved.

GREAT WEALTH AND GREAT LOSS

We are so accustomed to think about wealth in terms of material things that we forget that our vital capital, meaning the earning power of people, is much greater than that expressed in all the things we see. Our material wealth in 1922 was estimated at about 321 billions of dollars. The net future earnings of the 60,000,000 males and of the unnumbered females gainfully employed was at least 1500 billion dollars, so our vital capital was then about five times as great as our material wealth.

A great and unnecessary loss operates to keep the vital capital much smaller than it would otherwise be, and dentistry must sometime face its responsibility for part of this. Every year more than 30,000 young

men and women, with a capital value of about 750 million dollars, die between the ages of 25 and 29 from wholly preventable causes. The total capital value of the adult lives that could be saved annually by modern preventive medicine—and among such measures preventive dentistry should stand in the forefront—is estimated at over six billion dollars.* The diseases which cause such loss are frequently contracted or made possible in youth, and some of them find early expression in the mouth.

THE ECONOMIC VALUE OF THE NORMAL BOY

The boy who completes the eighth grade and leaves the public school at the age of fourteen and goes to work will be dependent on physical strength and manual dexterity for employment, will be irregularly employed and will never average to earn more than \$1700 per year. This income will begin to diminish before he is fifty, and after sixty he will be, in more than half of all cases, dependent on others for support. He will earn, by 44 years of work, about \$64,000.

If that boy continues through high school, he will apparently lose about \$2,000 that he might have earned if he had left school at fourteen, but his income will rise to an average of \$2800 per year and will probably continue at about that figure to the age of sixty. Between the ages of 18 and 60 he will earn about \$24,000 more than he would if he had gone to work at the end of the eighth grade, that is, a return of \$6,000 for each year spent in high school.

Should he graduate from college or a good technical school and then enter business, his income will rise to about \$8500 per year and will not fall off much before he is sixty. Between the ages of 18 and 60 he will earn about \$100,000 more than the high school graduate.**

In one important study, the normal boy of 15 years is estimated as having an economic value of \$25,000.

THE ECONOMIC VALUE OF THE RETARDED BOY

It is apparent from the figures given that the economic value of a boy is greatly affected by the amount of educational experience he can get, and of course this is greatly influenced by the condition of his health in childhood. Anything that retards his progress so that he does not get through the last school grade possible to him before family conditions or age compels him to go to work limits the kind of things he can work at, renders steady employment less sure, lowers his maximum earnings and increases the probability of poverty in old age.

* The figures here quoted are from *Economics of World Health*, by Louis I. Dublin, Ph.D., in *Harper's Monthly Magazine*, November, 1926, but I have placed my own interpretation on them.

** The figures used in these three paragraphs are from *The Relation of Education and Income*, by Everett W. Lord, 1928, under the auspices of the Alpha Kappa Psi Fraternity, Indianapolis, Ind.

I have before me, as I write, eight careful studies of the value of human lives measured by their power to earn money. Seven of them do not mention the boy who was kept from finishing the eighth grade. Economically boys so retarded that they are incapable of finishing the eighth grade are beneath consideration. While a boy who is forced to leave school before completing the eighth grade, as I believe Dr. G. V. Black was, may "go to school outside of school" all his life and accomplish great things, he is not a "retarded boy" in the sense here intended. The other study deals with the value of impaired lives and shows that such lives often become community liabilities.

Probably about 50% of the retarded children in the public schools are mentally incapable of the rate of progress set up as normal by educators or are so affected physically that they cannot exercise their mentality; for them there is little hope. But the others are of normal mentality, and some are above it. If the causes which hold the mentally normal children back are physical and are preventable, as most of them are, the boy, the community and the nation pay a price for some one's neglect, which, rightly understood, would not be tolerated. And whatever improves the health and increases the educational experience of any considerable number of children will add greatly to the wealth of the community.

WAS THE DENTAL CLINIC A SOURCE OF WEALTH?

If it can be shown that the dental clinic in the Bridgeport schools reduced the physical handicaps of the children in any large degree so that many more of them were able to make normal progress through school, the claim that it was an important potential source of wealth in the city will be supported. The best way to attempt that showing is to summarize briefly such physical conditions of the school children as the clinic might affect, in 1914, and the same physical conditions in 1924, to learn whether the children in 1924 made better progress through school than those who had never received such service, and to make an honest but conservative effort to show what part of that difference in progress might reasonably be ascribed to the prophylactic service and educational activities of the dental clinic.

CONDITIONS OF THE SCHOOL CHILDREN IN 1914

When the dental clinic began its service in 1914, more than 90% of the children in the lower school grades were suffering from extensive decay of the teeth, dead tooth pulps, apical abscesses, often with fistulas, and debilitated and diseased gums. We now know these to be signs of systemic physical deficiencies, often nutritional in origin. There were many other signs of deficiency—diseases of the eyes, ears, nose, throat;

faulty posture, constipation and general malaise. Only a few children even claimed to use a toothbrush, and in many cases the evidence was against the truth of their statement. On the average, the mouth conditions were such that a reporter wrote: "The conditions in some of the mouths of these children were worse than awful and they were not special cases either, but cases selected at random from schools at opposite ends of the city."

In 1912 40% of these children who had no dental clinic were retarded in their progress through school, and in some grades retardation reached 61%. Nearly 100 retarded boys, 14 years old, left school each month from the second to the sixth grades to go to work, hopelessly shut off from any considerable advancement in life and almost sure to be economic liabilities to the community. By 1918, with no great new health force operating in the community except the dental clinic, retardation had been reduced 50%.

No serious dental defects are included in the report of the superintendent of schools, and only 34% of the children in the first grade showed any physical defects instead of 97%, as in 1914. In Grade V, for instance, dental caries declined 69% from 1914 to 1921.

The loss of six-year molars fell from probably about 84% in 1914 to 7.5% in 1924, and this included children who came into the schools from outside districts or cities where there was no school dental clinic.

The greatest achievements of all probably were that in 1924 31% of the children had sound permanent teeth, as compared with about 1% in 1914; that 37% had clean mouths, as compared with none in 1914; that 34% had pink gums, as compared with practically none in 1914; and that only about 2% of the children were not in the habit of using a toothbrush daily, as compared with about 90% in 1914.

To bring these results to pass, there had been probably about 200,000 prophylactic treatments, several thousand toothbrush drills, and lectures on food and hygiene, thousands of fillings of six-year molars and extractions of deciduous teeth.

The hygienists had reached into the homes as no other health educational force in the community had ever done, and they constituted, ready at hand, an efficient staff of lecturers for the health program originated by Mr. Cortright.

The nutritional habits of thousands of families had been changed and refined flours, cereals and sugars had been largely supplanted by unrefined foods.

THE EFFECT OF RETARDATION

Retardation in the Bridgeport schools dropped from 40% in 1912 to 19.2% in 1922-1923. Expenditure for reeducation decreased from

42% of the school budget in 1912 to a little over 10% in 1922-1923, without any great decrease in the number of pupils per class or complete solution of the school-housing problem.

In the grades in which retardation was worst in 1912, it dropped from 59% to 29% in Grade IV, from 61% to 31% in Grade V, and from 54% to 29% in Grade VI.

Instead of losing nearly 100 children per month from Grades II to VI, inclusive, through working certificates, in 1922-1923, the school system lost only 60 children in this way from the first eight grades.

During the influenza epidemic Bridgeport, almost alone among big cities in the East, kept its schools open and recorded the lowest death rate of any city of its size, 5.2 per 1000 people. The City Health Officer gave the teaching of the dental clinic great credit for this result.

It would be preposterous to ascribe all these results to the dental clinic. Other important forces had joined, improvements had been made in the teaching personnel and methods, some improvements had been effected in housing, and a powerful health campaign was conducted by the Board of Education.

But for the six years from 1914 to 1920 the dental hygienists stood almost alone as a powerful, effective and progressive health force. During these years the benefits were identical in character and of great extent. During that period they reached back into the homes and changed family views and procedure as no other force did. What they did under the Board of Education was merely an enlargement of what they were already doing.

We cannot ascribe to the dental clinic its proper share of these benefits without perceiving that it was a great potential source of wealth.

GREAT ECONOMIC WORTH

In the eight grades of the public schools of Bridgeport in the session 1922-1923 there were 1335 pupils. For lack of more detailed information let us suppose that half were boys and half were girls. The boys had an economic value, at the figures we have seen, of \$25,000 each or 16½ millions. If half the girls went to work and each earned half as much as a boy, they had an economic worth of 4¼ millions, a total of \$20,625,000.

They were physically far above the average of the boys and girls in the same grades ten years before. They were practically free from all forms of dental disease, they were trained in the principles of nutrition and habits of personal hygiene, and they were much better fitted to exercise the maximum of their physical and mental ability than the boys and girls in 1912. Because the kind of patient the disease has

may be more important than the kind of disease the patient has, they would probably not succumb readily to diseases which had their origin in childhood. It is probable also that more of them were prepared to enter high school than they could have been but for their excellent physical conditions.

GOOD HUMAN RAW MATERIAL

The potential wealth of Bridgeport lies ultimately in her physically sound, intelligent, educated, ambitious and moral population capable of carrying on present enterprises and originating others.

From 1914 to 1920 the dental clinic in the public schools played by far the largest part in conserving child health as a foundation-stone for the development and exercise of intelligence, knowledge, ambition and character. From 1920 to 1924 the twenty-six hygienists and two supervisors were the teachers of important parts of the health program instituted by the Board of Education, and continuously throughout the entire period they protected bodies against disease by keeping mouths clean and sound. It is probably not too much to say that by service and education the dental clinic did more than any other one force to deliver to the employers of Bridgeport and the nation human, physically sound raw material capable of satisfactory further development. And this made it the greatest single potential source of wealth in the city.

CONCLUSION

The preventive dental clinic in the Bridgeport schools did not come into being as the result of a public demand for relief from distress, or because the Board of Health saw that it would raise the level of child health, or because the Board of Education realized that it would reduce the expenditure for reeducation and so save the city money, or because the great employers or their employment managers saw that it would improve the quality of their human raw material.

It remained for a dentist to conceive it as a great service by organized dentistry to humanity, to beg for five years for money and permission to demonstrate it, to gather and train the personnel, to develop the plan and to supervise its operation, until the fell hand of politics, for selfish reasons, destroyed its best features.

Whenever a dental clinic is conceived and carried out as was this, it will bring comfort to thousands of children and useful knowledge to many homes, it will help to raise the resistance to infectious diseases, it will lower the expense for reeducation, widen the educational opportunities for many, add to the vital wealth and assist in conserving good

health as the foundation-stone for inspiration, aspiration, achievement and satisfaction.

(The articles which have appeared have covered sufficiently well for our purpose the inception, conduct, development and achievements of the preventive dental clinic in the public schools of Bridgeport under the guidance of Dr. Fones.

In the next article we begin to come into contact with the forces of destruction which, for political and personal reasons, destroyed the most fundamental and constructive part of the clinic's work and dethroned Bridgeport from world leadership in this form of service.)



[TOOTH INSURANCE]

Some dentists have taken up the dream of preventive dentistry and even contracted to keep the teeth of some of their patients in perfect condition for a certain specified sum. They know the teeth of these patients and in point of fact are able to underwrite perfect teeth for a certain specified premium.

These patients are required to have their teeth looked over three or four times a year, so that no decay or other trouble could become advanced without preventive methods being taken to check it. But these cases are few in number and more or less isolated examples of unusual intelligence on the part of both patient and dentist.

—MILLER.

Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.

Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director,
Surgical Periodontia Department, Midtown Hospital, New York

(Continued from October).

CELLULITIS AND LYMPHADENITIS

¶282. Sight should not be lost of the fact that infection from the teeth and their adjacent tissues travels into the neck either through the lymphatic vessels, in which case it gives rise to a cervical *lymphadenitis*, or between the cellular tissue planes, resulting in a *cellulitis*. Both cellulitis and lymphadenitis may be either acute or chronic. (See Figs. 53, 178, 182, 195.)

¶283. Outside incisions made for the purpose of establishing drainage must be adequate, but not unnecessarily large. When the incision is made parallel to the lower border of the mandible and below it, the resulting scar is of linear type, producing very little deformity, and is therefore hardly noticeable. (See Figs. 320-325, and compare these with Fig. 74.)



Fig. 320

ACUTE CELLULITIS

Photograph of a boy, 14 years of age, showing a marked edema around the eye and a soft fluctuating swelling of the cheek. The treatment of such a condition requires evacuation of the pus and establishment of adequate drainage. This should be done regardless of the etiology. To be effective, an incision for the purpose of drainage must be made right over the fluctuating area, as shown in Fig. 321. (See ¶283, 292-293.)



Fig. 321

Photograph of the same patient as in Fig. 320. Note the nature of the incisions. While these afford the necessary drainage, no ugly and disfiguring scars are produced. (See ¶283, 292-293.)



Fig. 322

Photograph of a patient, 14 years of age, presenting a bilateral acute cellulitis. The swelling on both sides of the face is diffuse and indurated with fluctuation. Conditions such as this require drainage, which may be established through adequate extra-oral incisions. (See Figs. 323-325 and ¶283, 292-293.)



Fig. 323



Fig. 324

Figs. 323-324

Photographs of the same patient as in Fig. 322. These illustrate the nature of the incisions which are both necessary and sufficient in the type of case shown in Fig. 322. The aim of the operator in these cases should be the evacuation of free pus, if present, and its subsequent drainage. To accomplish this, the incisions are made as shown here and drains are inserted. In this connection rubber tubes may be employed to advantage. (See ¶283, 292-293 and Fig. 211.)



Fig. 325

Photograph of the same patient as in Figs. 322-324. This was taken one year after the operation and reveals that hardly any deformity has followed. Compare with Fig. 322. (See ¶283, 292-293.)

¶284. Too prolonged packing of a wound will at times result in the formation of exuberant granulations at the mouth of the wound. Therefore, as soon as pus ceases to drain, packing of a wound should be discontinued.

¶285. Damage to important structures (vessels and nerves) may be avoided if the original incisions are made superficially, then a pair of curved hemostatic forceps or a pair of scissors is forced into the opening and the fascia penetrated until the pus cavity is reached. By turning the hemostat when the abscess is entered, all pus pockets may be broken up.

¶286. A simple inflammation of the glands of the neck should not be confused with a cellulitis of the neck. These two conditions must be carefully differentiated.

¶287. It is well to bear in mind that the sudden onset of a stormy illness characterized by pain, extreme difficulty in breathing and swallowing and accompanied by a rapidly spreading boardlike swelling affecting the entire side of the neck may be a case of Ludwig's angina.

¶288. One should not forget that infections of the neck characterized by swellings are not infrequently *secondary* infections. In

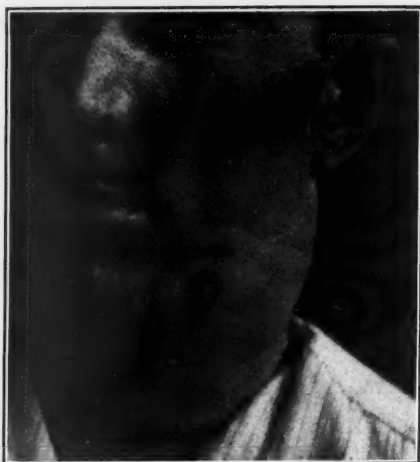


Fig. 326

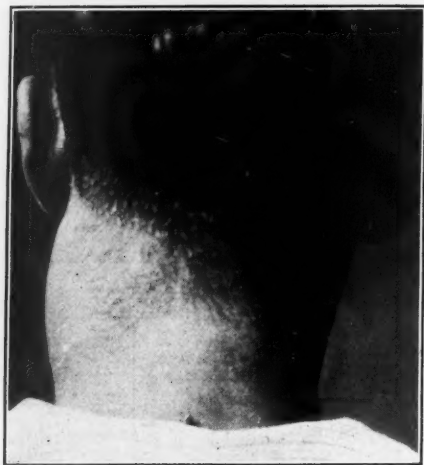


Fig. 327

Figs. 326-327

Photographs of a patient, 28 years of age, showing an extensive indurated swelling of the side of the neck which followed a pericoronitis caused by a partly erupted left mandibular third molar. Such types of swelling require large incisions, for as a rule there is no definite point where the pus is located. These hard, diffuse swellings can be satisfactorily drained only when *freely* incised. (See Figs. 328-329 and 1295.)



Fig. 328

Photograph of the same patient as in Figs. 326-327. This was taken six months after the incision was made and shows comparatively little disfigurement following the rather large incision. Compare with the appearance of a similar incision which was photographed five days after it had been made, as shown in Fig. 329. (See ¶295.)



Fig. 329

INCISION FOR A LARGE AND DIFFUSE SWELLING OF THE NECK

Photograph of a patient, 34 years of age, showing the nature of an incision which such an extensive, hard, septic swelling of the neck requires regardless of what the etiology and diagnosis may be. After the swelling subsides, the lips of the wound come together much more than is shown on this photograph, which was taken five days after the operation. (See ¶295.)

many cases the source of these infections is to be found in the oral cavity, teeth, pharynx, sinuses, ears, tonsils, or any part of the head. It is important, therefore, to take care of the *primary* infection as soon as the acute condition subsides. (See Figs. 74-75.)

¶289. The history in connection with a case of cervical lymphadenitis is very important, for the slowly progressing chronic types of swelling are often due to general diseases, among which are syphilis, tuberculosis and malignancy.

¶290. It is almost a rule that in cases of simple inflammation of the glands of the neck the swelling is well localized, and that soon after its occurrence it gives rise to suppuration. This should be considered when distinguishing such a condition from Ludwig's angina, Hodgkin's disease and various other serious diseases.

¶291. Cases of chronic cellulitis are not appreciably benefited by incisions, hence they are absolutely contra-indicated under such conditions.

¶292. Marked and diffuse swellings of the cheek, the neck and the tissues in the submaxillary region in which *fluctuation* is present require free incisions for the purpose of establishing drainage. Wet gauze packs covered with oiled silk and applied to these areas prove very beneficial. (See Figs. 320-325.)

¶293. For the purpose of adequate drainage of pus which produces marked swellings below the mandible, external incisions are most satisfactory. (See Figs. 211, 320-325.)

¶294. In cases where there is distinct fluctuation within the mouth, an intra-oral incision should be the procedure of choice. However, when the abscess is deep, an upward drainage will prove adequate. Such cases, therefore, necessitate extra-oral openings in addition to the intra-oral incision. After the opening in the mouth has been made, a round-nosed artery clamp should be inserted into it. The instrument is then forced through the tissues until its point can be felt under the skin. Over this point an extra-oral incision should be made and through drain inserted. Cigarette drains, iodoform gauze strips, rubber tissue and rubber tubing should be used to maintain better drainage. (See Fig. 211.)

¶295. Large, diffuse, indurated swellings very often require incisions, even when no fluctuation can be palpated. In many instances this will either cause the swelling to subside or provide a channel for the drainage of pus, which often forms in a day or two following the making of such an incision. (See Figs. 326-329.)

355 East 149th Street.

(To be continued)

Porcelain Manipulation

A PRACTICAL TECHNIC FOR THE GENERAL PRACTITIONER

By F. R. Felcher, D.D.S., Chicago, Ill.

XX

THE PORCELAIN INLAY

In discussing the porcelain inlay a slight digression must be made, because there are places where the porcelain inlay may become a disadvantage, and these disadvantages will be discussed first.

Right here the author wishes to offer a word of praise for those earlier workers with porcelain inlays whose efforts, both good and bad, have been the foundation of our success today. Considering the means at hand today such as higher-fusing porcelains, acknowledged to withstand stress better than did the low-fusing porcelains with which they



Fig. 58

Large incisal cavity—porcelain inlay contra-indicated.

worked, scientific pyrometer furnaces, etc., we can better appreciate the difficulties these pioneers encountered.

DISADVANTAGES

Porcelain inlays should, in the opinion of the writer, be used in a limited field. There are many limitations, and their use should be carefully considered before applying the inlay as a restoration.

Large incisal inlays or inlays restoring two or more surfaces, such as the mesio-incisal (Fig. 58), mesio-occlusal or mesio-occluso-distal cavities (Fig. 59), are better filled with another type of restoration. This may seem an indictment against the inlay, but experience seems to bear out the idea that is expressed above.

Of course, there will be considerable disagreement by operators regarding these statements. We see large inlays remaining in the mouth

for many years; we see them with stained margins of enamel, some held in by pins and some by cavity retention, serving the purpose ably, and yet, when we consider the failures which we personally experience, we surely must, to at least a reasonable degree, become somewhat cautious.

Take, for instance, a large porcelain inlay involving the mesial angle of a central tooth and extending over to the disto-incisal—assuming that we obtain retention by pins or otherwise, then we next consider color, we obtain the proper shade, make up the inlay, insert it, and then find that the inlay matches under certain light conditions and fails to match under others. The cement line in this type of inlay is in the line of the passage of food and tends in time to wash out. That decay does not form readily is possibly due to the fact that smooth porcelain does

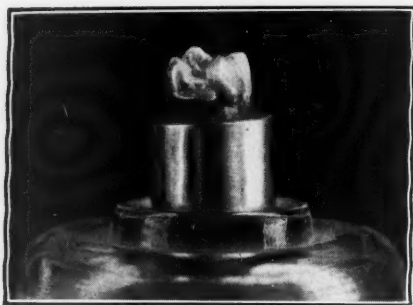


Fig. 59

Large compound cavity—porcelain inlay contra-indicated.

not encourage bacterial plaques. At times we do get discoloration of the enamel, and this is discouraging to the patient as well as to the operator.

Regarding adaptation, the inlay fits the cavity in proportion to the thickness of the cement used. If an inlay is constructed to fit a cavity perfectly and the platinum matrix used is .001 gauge, the cement, if thicker than .001 gauge, will allow the inlay to project above the cavity. Conversely, if the cement is thinner, the inlay may fall below the margin of the cavity.

This brings up a thought relative to the technic of casting a male and female of a cavity, the female being of 24-karat pure gold and 1700-degree porcelain being baked in the female casting. Any cement used therein may tend to raise the inlay above the margins, as there is so little space between the male and female castings. Therefore the

thinnest possible cement mix must be used, and this is somewhat disadvantageous, due to the possibility of a perfect chemical mix not being obtained. The difficulty of obtaining perfect castings of the male and female parts, the time involved and the necessary cost to the patient also are factors.

It will be seen here that the matrix method of making the inlay will be the most practical, especially when the inlay is made by the indirect method, because of the possibility of swaging during at least the first biscuit bake. This will help seat the inlay before the balance of the porcelain is applied and fired.

ADVANTAGES

There are places where the porcelain inlay serves ideally, as follows: cervical, proximal, labial, occlusal, and, in some instances, small incisal

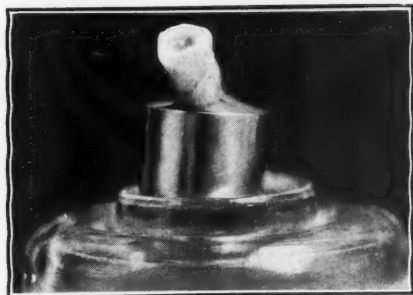


Fig. 60

Occlusal cavity—porcelain inlay indicated.

restorations. The operator who holds to these types of inlays will have the smallest degree of so-called "come-backs."

The cervical porcelain inlay is ideal because of the value of smoothness and contour at this important part of the tooth. It is a far better restoration than gold, not only because of color but because of the plaque elimination on highly glazed porcelain and the elimination of thermal conductivity. It excels the silicates because the latter tend in time to present a rough surface, encouraging bacterial lodgment and discoloration.

The proximal porcelain inlay excels the gold or the silicates for the same reasons. In this kind of an inlay we have the ideal advantage of smooth contacts.

Labial and occlusal porcelain inlays are used to stop erosion or wear. When protected by sufficient tooth structure, they will serve well (Fig. 60).

In some instances the very small incisal inlay works well (Fig. 61). However, where a large portion of the tooth is lost a partial jacket crown will serve better (Fig. 62). To protect the cement line, the shoulder should be beveled toward the gingival.

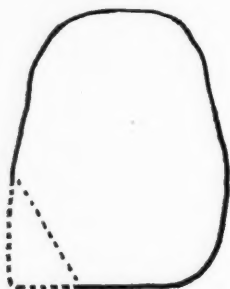


Fig. 61

Small incisal cavity—porcelain inlay indicated.

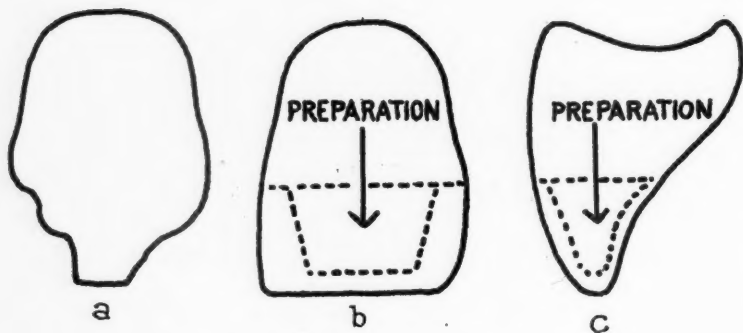


Fig. 62

Steps in preparation of a partial jacket crown.

CAVITY PREPARATION

Cavity preparation is an important step in this work. Success or failure depends largely upon it. Steps for the proper retention should be employed. The author believes that in cavities directly in the line of occlusion stress planes similar to those employed for jacket crown preparations should be used.

If a large inlay involving the proximo-incisal angles is to be used,

then the proximal should have a large defined area at the cervical so that the strain will be in the direction of the long axis of the tooth (see Fig. 58).

We must remember that porcelain is a frail material, and that it should not be expected to stand the stress of mastication without the preparation of the tooth so that the tooth becomes a recipient of part of the stress. It is therefore necessary that the force the inlay is to withstand be carefully studied, and that the cavity be prepared accordingly.

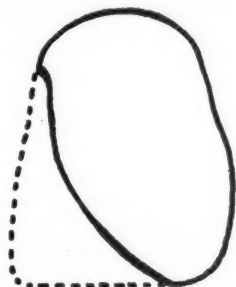


Fig. 63
Mesio-incisal inlay in a central.

Under ordinary conditions cavities for porcelain inlays do not differ from cavity preparations for gold inlays, except that the margins are straight and not beveled.

Do not use saucer-shaped cavities. Have the floor and the walls definite.

Assume here that the operator intends to prepare a tooth for a mesio-incisal inlay in a central tooth (Fig. 63). First remove all overhanging enamel, straightening as much as possible any angle that may exist. Prepare the cavity with parallel walls, so that when the inlay is finished it will have the stress stopped at the mesio-gingival wall and by a plane at the incisal. If pins are necessary for retention, slight holes may be drilled in the tooth structure at the proper places.

7616 Phillips Avenue

(To be continued)



Are We As Wonderful As We Think We Are?

By Heman Anderson, D.D.S., Perth Amboy, N. J.

Recently a fine dentist and a good example of the old school of dentistry passed away. Thirty or thirty-five years ago he was the only dentist in our town.

He became a dentist by the real old-fashioned way. He worked for a dentist for a number of years, doing first the laboratory work, and, as time passed, began helping out with the operating work. Then one day he decided to open for himself.

He never saw the inside of a college, but what wonderful work he did, and how long it lasted! I now occasionally see plates he made forty or fifty years ago that are in good condition, and gold and amalgam fillings that have been in service for from thirty to fifty years, and they also are in good condition.

On the other hand, I see and hear about the work of the younger college men. People tell me about fillings that Dr. So-and-So put in six months, a year, or sometimes two or three years ago, and it just seems that I hear nothing but complaints about fillings falling out, plates not fitting, crowns coming off in a few months, and so on.

Now we have a dentist on every corner, and the office buildings are full of them. We have three-year men, four-year men, and soon we will have six-year men, but the work of our old-time dentist without any college experience outshines the work of all of these. I have in my mouth in the right central a very difficult gold filling, one of those into which it required over three hours to pound the gold. It has been in for thirty-eight years and is still doing well. I also have a couple of gold crowns put in by him that have been in service for forty years. They have never come off nor given me the slightest trouble of any kind.

Following are some of the other dental experiences I have had. While attending college I had some dental work done by a man who is an author of dental text-books, and whose name appears often in our dental magazines. Some of his gold fillings did not last ten years, and one of his crowns lasted only six years.

About three years ago a younger man, a graduate of one of the leading dental colleges, put in a few amalgam fillings for me. One of them fell out in less than a year.

Can a person be blamed for wondering whether the old methods were better, or whether the old style attracted better men, or men more suitable for the profession, or what the trouble is?

Personally, I think the old style of serving for a time in the office, and especially in the laboratory, of a preceptor is the training needed

before entering college. Now it is asked: "Where are your high school diploma and your college record?" I do not decry education. On the other hand, I am a great believer in it, but I also firmly believe that a student entering college will absorb more real knowledge of dentistry if he has spent some time in the office and laboratory of a good, busy dentist.

I anticipate a storm of wrath from the younger men, but I have the evidence of good work done by the old school in my own mouth and find daily evidences in patients' mouths of the inferior dental work being done all around me by the new school. I feel that this poor work is due to carelessness, and it is up to the men to change. If our college methods are wrong, then it is up to the profession to change them.

I personally think that a year in a dental office before entering college, a dental course of four years, and another year served in an office before the student opens his own office would be better for the beginner, the profession at large, and certainly for the "dear public." This is my idea of the way to spend six years in study—the most recent requirement of our leading dental colleges.

By spending some time in a dental office and laboratory before entering college the student gets an idea of whether he likes his new and chosen profession, and also whether he is fitted for it. If a beginner spoils too much material in a dental office, he is liable to "get the bounce" rather quickly, and this will discourage him. He will then decide on some other career, and dentistry will be spared a misfit. Our modern method does not discover the misfitted man until he has been graduated and has started practising, and the public has discovered that kind words or bluff will not keep a filling in a tooth nor prevent a tooth from hurting if work is not done properly.

I think a dentist with a pleasing personality, a clean office and a fair amount of mechanical ability will succeed in the profession and make more money than he would if the same amount of energy and brain power were expended elsewhere.

307 State Street.



Is It Dentistry or Dentists?

By Roy W. Rugg, D.M.D., Kent, Wash.

After reading the article in reply to *What's the Matter With Dentistry?* written by a country dentist, and as I am in the category of a country dentist, so to speak, I should like to say a few words concerning this subject.

The question, I believe, is not "What's the matter with dentistry?" but "What's the matter with dentists?" I have been in practice just seven years, and, about two or three years ago I was getting in about the same position as my friend, the country dentist, wishing that I could find something else to do, feeling of course that the other fellow's business was much better than mine. Just about that time I began to take an inventory and found that the trouble was not with dentistry but with me.

In checking over patients I found that I was letting more work go out of my office than I was doing, and that I was not rendering to my patients the service, as a dentist, which it was my duty to give. I was negligent in telling them of the importance of their teeth in relation to their general health.

The time wasted in explaining and educating a patient about his teeth is not lost by any means; in fact, it is the best means of advertising that an ethical dentist can employ. At first I thought I could not afford to take time to explain and teach, as I could not charge for this service, but now for most of the time spent in teaching and educating my patients I get paid and have increased my cash earnings at least twenty-five per cent each year over the year previous, since I began telling my patients about their teeth.

There are very few patients who come to my office who are not hungry for tooth knowledge. It is surprising how little people do know about their teeth. Who is to tell them? Who is to teach them as they should be taught? Are we who ask, "What's the matter with dentistry?" to let the tooth-paste manufacturers or toothbrush makers do this advertising for us or let the public be educated by some other means, while we stand idly by lamenting the fact that our profession is the "bunk," and that goat-raising has far greater possibilities? No, let us look this thing squarely in the face, and get busy!

Who can teach dentistry better than we? Who will profit more if people have more dentistry done than we? The only way to make people want dentistry is to create a demand by teaching them its value. You will now say, "How about the financial return?" That always comes if you are on the right track. People who you thought could not afford dental work will tell you that they cannot do without it, but must have it. If you doubt this, try it! If you show a man that you can

give him longer life with less ills during that time and thereby save loss of time and other expenses, do you think he is not going to contribute to your income? Just test this out and see. That is why most large companies request or require that their employees have proper dental attention.

No, my friends, the question is not "What's the matter with dentistry?" but "What's the matter with dentists?" Let us do our allotted share, see that no one passes through our hands who has not been taken care of properly and educated to the value of his teeth. The financial returns will then take care of themselves. Once people know the value of dentistry, they will demand it and pay for such an education.

Berlin Building

AMERICAN DENTAL ASSOCIATION

Seventy-first Annual Session

OCTOBER 7-11, 1929

WASHINGTON, D. C.

An Unusual Case

We are indebted to Dr. E. T. Bettenhausen of Duluth, Minnesota, for the accompanying x-ray, which shows a full mandibular denture lodged in the esophagus. It was necessary to retouch the illustration to show better definition of the denture, and consequently some of the detail, which is very clear in the original, has been lost.

The patient was a man, 80 years of age, and the accident occurred while eating. Fifteen days elapsed before an operation was performed, during which time the patient suffered only slight pain and discomfort.



However, a critical condition developed and an operation was decided upon, which ended fatally.

It would seem almost impossible for a person to swallow a full mandibular denture, but since it has occurred, it seems strange that more mishaps of a similar nature have not been reported, when so many people do not remove their dentures at night.

A Reply to Dr. Geiger's Article on "A Case of Replantation"

By Edouard M. Hall, D.D.S., F.A.C.D., Kansas City, Mo.

In the September issue of your journal, page 656, appears an article by W. J. Geiger, D.D.S., of Rockville Center, N. Y. Dr. Geiger gives what purports to be a case history of what he evidently believes is a successful replantation.

We have no desire to discredit Dr. Geiger personally, but, believing his operation as described to be wholly wrong in every respect and at variance with all scientific data as accepted by your best investigators, it seems only right to me, in the struggle for truth, to call attention to these things, lest altogether too many operators take his technic as given for a guide in similar cases coming into their offices.

First of all, a *replanted tooth* is, in fact, a truly *dead tooth* and as such becomes the center of a living tissue reaction of one type or another which is commonly associated with dead bone. Either it is resorbed or a sequestrum is formed that is associated with a suppurative process of sufficient extent to exfoliate or throw out the sequestered bone, or a sequestrum is formed that is associated with a suppurative process less extensive but forming and maintaining fistulous drainage.

All normal teeth have a covering of cementum over the root, and this is nature's best tissue for this purpose, so why did Dr. Geiger resect the apical third of the tooth before replanting it and in so doing expose the dentin, which in structure and function is not nearly so well adapted to resist reactions to follow? In fact, "cutting off" the apical third only invited and hastened the resorptive process.

Dr. Edward H. Hatton has called our attention to what he says are the three most frequent or most prevalent failures in root-canal work; (1) failure to remove all of the pulp tissue; (2) failure to fill the full length of a pulp canal; and (3), the most serious of all, the failure to fill the full diameter of the canal, thereby inducing by capillary attraction a diffusion of body fluids and septic and toxic materials in and around the root filling.

Now, only casual study of the radiogram of Dr. Geiger's replanted tooth will reveal to any man that his root-canal filling falls into Dr. Hatton's third group and is a most serious and insidious failure.

A careful study of the radiographic resurvey taken about one year later will reveal what I believe to be resorption of the root-end well under way.

And, finally, in his closing paragraph he says, "I have seen the case within the last year and the tooth is still very firm and has never been uncomfortable."

Why did Dr. Geiger not take a radiogram at this last visit of the patient and give it along with the other two? My prediction is that had he done so he would have found extensive resorption of the root.

Even had a recent radiographic resurvey shown a *seemingly* satisfactory condition, we as a profession must not take a single case history as proof of the scientific value of a given operative procedure, but rather we must compile a careful and complete history of many cases and judge of its value by the percentage of success or failure.

I believe the evidence to date is strongly against replanting teeth.*

712 Shukert Building.

* Hatton, Marshall, Rickert, Blayney, Hall: *Methods and Fundamentals in the Allied Sciences Essential to Successful Root-Canal Surgery* in *The Dental Cosmos*, March and April, 1928.

Children Educated In Value of Sound Teeth Through Red Cross Efforts

If the coming generation proves to have better teeth than their parents, the American Red Cross will be entitled to its share of credit along with the nation's dental surgeons and other health forces.

The American Red Cross service in this respect is both preventive and corrective. Through its public health nurses, many of whom assist in finding and correcting physical defects among school children, a large number of children handicapped by defective teeth have been referred to dentists for improvement. There are many instances in which the work itself has been made possible either by the local Red Cross Chapter in the community concerned, through cooperation with public-spirited civic organizations, or by the dentists themselves. The Junior Red Cross, composed largely of school children, frequently adopts as a part of its community program provisions for such dental work.

In the field of preventive effort perhaps the Red Cross nutrition service is as important as are corrective branches. The relationship of diet to sound teeth is well known and a proper diet for good teeth and general sound health is the keynote of nutrition instruction.

Such services and others of the American Red Cross are made possible through the support of an active membership on the part of the whole people. The invitation to join for the coming year will be extended from November 11 to 29, 1928.

AMERICAN RED CROSS
TWELFTH ANNUAL ROLL CALL
NOVEMBER 11-29, 1928

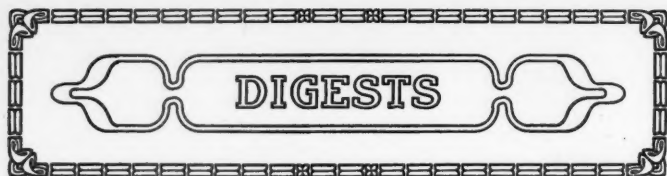
The School of Dental and Oral Surgery, Columbia University, Moves to the Medical Center

At an elaborate academic ceremony on October 12, 1928, the entire Medical Center, New York, N. Y., was dedicated to its three-fold purpose of teaching, research and care of the sick. During the six months preceding, a number of the hospitals associated in the Medical Center were moved and during the month of September Columbia University transferred to the Center four of its teaching groups—the College of Physicians and Surgeons, the School of Dental and Oral Surgery, DeLamar Institute of Public Health and the School of Oral Hygiene.

The purely dental portion of the School of Dental and Oral Surgery occupies three floors superimposed on top of the Vanderbilt Clinic, which is the Out-Patient Department for the entire Medical Center. Many of the laboratories and class rooms of the College of Physicians and Surgeons are to be used by both medical and dental students, who will have much of their work in common. The medical and dental students will have a common entrance at 630 West 168th Street, and the medical and dental patients will enter through the common admitting department of Vanderbilt Clinic. The steps which have been taken are in line with the expressed desires of leaders in the dental profession to have the dentist eventually become a medical specialist on par with the surgeon. As another step in this same direction and to assist in raising the standard of dental teaching, the classes have been limited to sixty, following the precedent established by the Medical School. The first class in dentistry registered at the Medical Center on September 28, 1928.

The units which are now functioning at the Medical Center, in addition to the four groups connected with Columbia University, are the Presbyterian Hospital of New York, Presbyterian Hospital School of Nursing, Squier Urological Clinic, Harkness Private Pavilion, Sloane Hospital for Women and Vanderbilt Clinic. The Neurological Institute, the New York State Psychiatric Institute and Hospital and the Babies Hospital are to be opened about the first of the year.

The students of the Dental School are allowed the general and clinical facilities of all the hospitals and clinics of the Medical Center.



FOCAL INFECTION AND ITS RELATIONSHIP TO SYSTEMIC DISEASE

By ELMER HESS, M.D., F.A.C.S.

"1. Dental foci of infection are directly causative of many systemic disease conditions.

"2. Dental foci are the direct cause of upper genito-urinary infections in a large majority of cases.

"3. Dead teeth are almost always infected teeth and should be removed for preventive purposes rather than for curative ones.

"4. Capped, dead teeth are often misleading, because they give a clean appearance to the mouth and hide conditions which exist in the jaw. The x-ray is not infallible, although a very valuable aid in the diagnosis of dental infection. Removing the focus of infection will never restore distant tissues to normal if they have become permanently damaged.

"5. When in doubt as to whether a tonsil or tooth is the cause of a systemic condition, it is far better to remove both, even though only one may be the guilty party."—*Official Bulletin Odontological Society of Western Pennsylvania*, September, 1928.

IMMEDIATE RESTORATION

By JOHN F. MAUER, D.D.S.

"Some of the advantages derived from the insertion of an immediate restoration are:

"Records made before the teeth are extracted eliminate guessing in the retaining of the natural temporo-mandibular articulation, facial contour, and individual facial characteristics.

"A reproduction of tooth form, shade and position is made possible.

"A definite ridge form is obtained.

"The healing time of the tissues is shortened and the pain following extraction is less severe.

"There is no development of abnormal mandibular movements due to the loss of teeth.

"The patient becomes accustomed to the wearing of dentures during

the healing period, thereby eliminating most of the difficulty of changing from a natural dentition to an artificial.

"The patient need not undergo the embarrassment and loss of morale due to an edentulous appearance.

"In partial restorations the position of the remaining teeth is maintained, insuring against malocclusion with its resulting loss of function and eventual loss of additional teeth.

"The restoration prevents tongue enlargement and cheek displacement due to the space made by the loss of a tooth or teeth.

"The records made of existing conditions previous to the extraction of the teeth make it possible to construct the restorations with a definite technic, eliminating the guesswork required when all the evidence of natural conditions before extraction are destroyed.

"Immediate restorations are indicated irrespective of the age of the patient in the loss of a tooth or teeth through accident as well as when their removal is made necessary by disease. When this service is rendered with a knowledge of requirements, our patients receive health service."—*The Pacific Dental Gazette*, August, 1928.

CAPPING VITAL PULPS

By CARL J. GROVE, PH.G., D.D.S., F.A.C.D.

It is generally considered that all injured tissue is capable of healing. However, there are some cells that do not regenerate and the odontoblasts are of this kind. They cease to function and atrophy follows. Consequently the capping of exposed pulps is never permanently successful. Furthermore, the pulp is composed of embryonic tissue and has no power of repair. It will degenerate with evidence of periapical infection.

The only condition where this operation is permissible is when the end of the root is not fully formed. If the pulp can be kept alive until the root end has fully developed, then a valuable service has been rendered.

A stiff paste is made by mixing cement powder with liquid hydrated chloral. This liquid is prepared by triturating equal parts of hydrated chloral and thymol in a warm mortar. A small portion of the paste is placed directly over the pulp and then covered with white copper cement. There is no objection to leaving a layer of decayed dentin over the pulp.

Vitality tests should be made at frequent intervals, and the progress of the development of the root should be checked by radiograms.

In all other cases where the pulp is exposed it should be removed and the canal filled.—*The Journal of the American Dental Association*, September, 1928.

SOME FUNDAMENTALS IN TOOTH FORM

By RUSSELL C. WHEELER, D.D.S.

The author states that there are not many dentists having a knowledge of the form and contour of the teeth, and that very few articles on this subject appear in dental literature. There is a reason for every curve, angle and position of the teeth, and though nature makes mistakes, they are very few.

Proper contact is most important from the ball contact of youth to the flat contact of old age—and not only contact, but the correct formation of the approximating surfaces. The contact point on molars and bicuspid is nearer the buccal than the lingual. The contact point of the anterior teeth is not so simple as it seems, and the common fault is to make the approximating surfaces too narrow labio-lingually. These teeth have definite marginal ridges.

The contour of the buccal and lingual surfaces is of great importance, though the curve is seldom more than one-half millimeter in degree from the cemento-enamel junction to the crest of the curve.

Marginal ridges prevent the food from being forced down between the teeth and opening the contact.

The incisal edges of the anterior teeth are either on a line with the center of the roots or slightly lingual to them. The working surfaces of bicuspid and molars are almost one-half as small as the measurement through the greatest curvature. If they are made any larger, too much stress is placed on the roots.—*The Dental Cosmos*, September, 1928.

THE RELATION BETWEEN THE BACTERIAL FLORA AND TRACHEO-BRONCHIAL FOREIGN BODIES

By CARL J. BUCHER, M.D.

"1. A variety of pathogenic bacteria are present in the trachea and bronchi of foreign body cases.

"2. Many of these are capable of producing infection.

"3. There is usually more than one kind of bacteria present in the bronchus of a single case.

"4. In the great majority of cases the degree of infection seems to depend more on the type of foreign body, the degree of obstruction to drainage, the age of the patient and the sojourn of the foreign body in the bronchus than on the kind of bacteria present."—*The Journal of the American Medical Association*, September 1, 1928.

PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Editor, Practical Hints:

About a year ago I extracted the lower right molars and bicuspid for a man, 64 years of age, and later the lower left molars. Healing seemed complete until about two months afterward when a sore area appeared opposite the bicuspid region on the lingual gum tissue soon followed by a similar area on the inside surface of the cheek opposite the molar region on the left side. These two sores were very different in appearance. The one on the right was slightly elevated, warty in appearance, with a yellowish exudate. The margin was definite (red). Outside of this margin was a lighter area beyond which the tissue was healthy. The area on the lower right side had spread back to the third molar region and forward to the central region and was confined wholly to the buccal and labial tissue. However, the inner surface of the lower lip is somewhat affected. The sore seems to be cracked in the molar region where it had previously healed.

The teeth were very brittle when extracted, and the apices of the first molar roots were left in after working for about two hours to remove them. The teeth were extracted due to excessive abrasion and soreness, though no fillings had been placed in them nor had any root canal work been performed.

I used conductive anesthesia when removing these teeth and was particularly careful to sterilize the syringe and all instruments used. After extraction I bathed the sockets with 2% mercurochrome and I am sure I used as aseptic methods as possible.

The patient complains of no pain, only soreness. He has had rheumatism and catarrh very badly for years. He chews tobacco a great deal but does not smoke.

I treated these areas with 2% mercurochrome, iodine, potassium permanganate mouthwash and finally cauterized with silver nitrate, as suggested by a physician.

All this treatment seemed to give no relief. The patient has hot spells at times, but not frequently. He works daily, but seems to be failing of late.

P. A.

ANSWER.—It would hardly seem that this condition has anything to do with your operation, and I would send him to a good general surgeon.

Editor, Practical Hints:

I have a patient, male, 14 years of age, whose teeth have black lines around them. This condition recurs almost immediately after prophylaxis. What is your diagnosis and what treatment would you advise?

Another patient, male, 23 years of age, presents a condition of acute gingivitis. His systemic condition is good, although there is a history of gonorrhea now negative. The teeth have been thoroughly scaled and all deposits removed, and the patient has been advised to massage the gums, refrain from smoking, and diet as recommended in the Digest. The bite is normal, and x-ray reveals no periapical infection. It has been five weeks since the first treatment was begun, and improvement is only slight.

J. L. G.

ANSWER.—In regard to the first case the black lines are due to a disturbed metabolism. Reduce materially the total amount of food eaten and increase the proportion of roughage such as lettuce, celery, tomatoes, fruits and vegetables. Substitute whole wheat for white flour and reduce to a minimum the amount of heavy carbohydrate and proteid foods such as meats, breads, cakes, etc. Until this diet takes effect keep the surfaces clean by prophylaxis.

In the second case the following treatment may be beneficial. Make a thick paste of sodium perborate with water and spread over all the teeth. Treat any red or ulcerated areas in the same manner. Have the patient hold this in the mouth for about five minutes and then rinse with warm water. This should be done daily for a week, but not oftener as too frequent treatment produces irritation.

Editor, Practical Hints:

Please explain the preparation and use of ammoniacal silver nitrate and formalin. What advantage has it over silver nitrate used alone?

I had a little incident occur the other day which might save some readers a little worry, should they have the same thing happen to them.

I prepared and filled a large cavity in a lower first molar for a girl eight years of age, having given her a mandibular injection. I also extracted a deciduous abscessed tooth under the same anesthetic.

This was done at 4:30 P. M. At 7:30 P. M. the same day her mother brought her to me and was quite worried, the little girl's lip having swollen to the size of a pecan nut. It alarmed me at first, as the lip was easily three times its normal size. I told them not to worry, that she had been chewing her lip, but the girl denied this.

I had them bring her in the next day. The lip was deep bluish-red and looked for all the world as though it was going to slough. On the lingual there were one or two yellow patches. I painted it with iodine and told her to come in the next day. I worried a little, thinking that a prolonged anesthesia might cause sloughing, but I didn't think the sloughing would hardly be at the lip. The next day I caught the girl unconsciously rolling the lip gently between the teeth. I lectured her, and in about a week the lip was all right.

F. J. R.

ANSWER.—Ammoniacal silver nitrate is now easily obtainable in ampules and keeps much better in this form. Furthermore its preparation is rather a messy procedure and the saving in expense is very little. Briefly the formula is: Make a saturate solution of silver nitrate in water and add, little by little, strong ammonia. A dark precipitate of silver oxid is thrown down which is soluble in an excess of ammonia. Consequently add ammonia until the solution is clear. This is solution No. 1 and should be kept in a colored glass bottle away from the light. Solution No. 2 is a 25% solution of formalin in water. However, eugenol is just as effective and far less irritating.

Ordinary nitrate of silver, to be most effective, must be acted upon by sunlight which prevents its use in inaccessible places and root canals. Also, the sun should act on it for a period of time. Ammoniacal silver nitrate is precipitated immediately by solution No. 2 and was perfected by Dr. Howe for the sterilizing of dentin in root canals. When used by his technic it has deep penetration, and when repeated several times it will occlude the fine canals. When formalin is used as the No. 2 solution, care must be taken not to produce pericementitis.

Editor, Practical Hints:

I have a patient with bright yellow teeth. Every tooth in his head is of this color and the pigment is solid in every one, that is, it is found in the dentin as well as in the enamel.

The patient is a young man, 20 years of age, and in perfect health. He is one of five children and is the only one so affected. However, his mother has yellow teeth and also one of her sisters. The boy's grandfather on his mother's side had the same thing, and the grandmother of this grandfather had it, too. It is certainly an inherited characteristic, but what causes it?

The deciduous teeth were perfectly white. The boy does not use tobacco in any form, which could not, therefore, aid in staining them.

Have you ever seen a condition of this kind, and would you attempt to bleach the teeth?

E. O. S.

ANSWER.—Your patient certainly presents a strange condition and one that I have never heard of before. Of course we know something about mottled teeth, but this seems to be something very different. I do not believe that bleaching will have any effect.

I will publish this case in *THE DENTAL DIGEST* and we may perhaps get some information from some of our readers.



DENTAL ECONOMICS

The Dentist and the Law

By M. L. Hayward, Hartland, N. B., Canada

WAS THE POLICY DELIVERED?

The dentist had insured his stock in the Pyro Insurance Company. At least, the premium had been paid, the application accepted, and the Company had forwarded the policy to the local agent with instructions to deliver to the dentist.

The agent took the policy out of the post office, decided to deliver it on his way to his own office, but the fire engine passed him on the way, and when he arrived at the dentist's office he found that the fire was beyond control.

"It's a lucky thing the policy did not arrive an hour earlier," the agent assured himself and returned the policy to the Company. The dentist sued and the Company defended on the ground that there had been no legal delivery of the policy.

"When you forwarded the policy to your agent to deliver to me and there was nothing for me to do except to receive the policy, the agent held the policy for me and there was a complete and binding contract," the dentist contended.

This point came before the Massachusetts Supreme Court in the case of Wheeler vs. Insurance Company, 131 Mass. 1, where the court ruled in the dentist's favor, and there are Michigan, Nebraska, New Hampshire, New Jersey and Ohio rulings to the same effect.

HOLDING THE AGENT

"You need some extra insurance on your stock."

"Yes, I have been intending to place more insurance as soon as I got around to it," the dentist agreed.

"No time like the present. You've got an account against me for \$100.00. You square the account and I'll use the money to get you insured in a good company," the agent suggested.

"It's a bargain," the dentist concurred and marked the agent's

account "paid." His stock was burned and the dentist ascertained that the agent had not placed additional insurance.

"If you'd carried out your agreement, I could have collected \$500.00 more on my loss," the dentist averred and sued the agent for that amount.

"All you can collect is the premium which you've paid me. In this case you can collect my \$100.00 account, but no more," the agent argued.

The court ruled in favor of the dentist, however, as the Indiana, Minnesota, Missouri, New Hampshire, New York, South Dakota and Wisconsin courts have laid down the rule that the measure of damages in such cases is the insurance which might have been collected if the policy had been procured.

THE STOLEN GOODS

The dentist had insured his stock against "loss or destruction by fire," paid the premium, and the policy reposed in his safe deposit box in the River Bank.

Then a fire visited the dentist's office. One-third of the goods was burned and two-thirds were removed while the fire was going on. Of the removed goods one-half was stolen before they reached the sidewalk "by persons unknown," according to the police reports.

"We'll pay for the destroyed goods, but not for the stolen property. Our policy was a fire, not a burglary, contract," the insurance company pointed out.

"No, you insured against fire, on account of the fire the goods were removed, on account of the removal of the goods they were stolen, so the theft was really caused by the fire," the dentist contended.

On this point the Illinois, Louisiana, Maine, Pennsylvania and Federal Courts have ruled in the dentist's favor, on the ground that the fire was the "proximate cause" of the loss.



CORRESPONDENCE

Can You Help?

We are publishing the following letter in the hope that some of our readers may be able to give some information in regard to this case. We have been unable to find any reference to such a condition in the textbooks that are at hand.—EDITOR.

Editor, Dental Digest:

I have a case of blue spots that have come on the gums of a young lady about twenty years of age. To all appearance it would look as though there was a ruptured blood-vessel, and has the same appearance as a blue-gum negro (which to us people of the South is very common).

This young lady is American, born of Greek parents, and has been under my care as a patient since a young child. These spots have appeared within the last six months. There are no fillings in any of the surrounding teeth and no trace of any infection such as pyorrhea in her mouth, and the young lady appears to be a perfect picture of health.

I took this up with an elderly doctor who had been in the dental profession for forty years, and who had been a pyorrhea specialist for the past twenty-five years, and he informed me that he had had two cases within the last few months, also of Greek descent, one about twenty-five and the other about thirty years of age. He says he exhausted every bit of knowledge he had in trying to find out what these spots were, even going so far as to cut into them with a lance—all to no avail. He says that in his forty years of experience these are the only two cases he has ever seen.

If from my meager description you or any one else is able to judge what this is and can give us a treatment for it, it will be highly appreciated.

W. H. S.

Editor, The Dental Digest:

I have been a subscriber to *The Dental Digest* for about ten years and have profited considerably from time spent in reading it.

I have been out of college eleven years. Of that time one year was spent in an Infirmary, two years in France and Germany with the Army, and eight years in private practice. I have tried to give my patients good, conscientious service; I have kept up with the advances in dentistry, and apparently my patients are quite satisfied with my services. That is, they tell me they are, but I rather believe that part of this appreciation consists of financial reward, which they seem to forget. In other words, I am a professional success and a financial failure. What is the matter with me? I am married, have two very fine children and a very devoted and considerate wife. Our wants are few, and I have tried without success to solve my financial problems without avail.

I believe that my case is similar to hundreds of young practitioners in the country—simply living a hand-to-mouth existence. I believe that I could name over in my State alone quite a number of young men in my same predicament, men who are conscientious in their work but financial failures.

What are the causes? What is the remedy?

"A SMALL-CITY PRACTITIONER"



DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

I am writing in the hope of finding a good solution in which to sterilize instruments that cannot be boiled. I have been using 20% lysol, but it is not proving very satisfactory.

U. W., Indiana.

ANSWER.—All instruments that cannot be boiled should be thoroughly scrubbed in warm water and germicidal soap, then placed in a steam pressure sterilizer in linen wraps made for their purpose. Formaldehyde, hydrogen dioxide, carbolic acid, alcohol, lysol, all are used for sterilization of non-boilable instruments. However, the instruments cannot be left in the solution indefinitely. About 15 minutes is given by some authorities as sufficient. Carbolic acid can be used in a 5% solution, formaldehyde in a 10% solution, alcohol pure. Have you tried a stronger solution of lysol than the 20% one you have been using?

Have our readers any suggestions that have proved satisfactory to them? We should be glad to hear.

Dear Miss Pierce:

We had a very unpleasant occurrence in our office not long ago. One of our patients fainted as she was coming out of the anesthetic, and

we were a long time bringing her out of it. I am new in the work, and the doctor is a recent graduate. We had nothing in the office but ammonia. What remedies would you suggest keeping on hand for such emergencies?

L. B., Pennsylvania.

ANSWER.—Certain remedies should always be on hand in every dental office in order to be prepared for emergencies arising from the giving of an anesthetic. Ampules of amyl nitrite and aromatic ammonia can be quickly and effectively handled for inhalation. If the patient can swallow liquid, aromatic spirits of ammonia can be given. Sometimes tincture of digitalis or atropine is found necessary. The doctor may even have to resort to a hypodermic of strychnine sulphate. Then there is the old-time remedy, brandy or whisky. What is given the patient must necessarily depend upon the type of seizure and the confidence the dentist has in being able to care for the emergency. No assistant should attempt to give the patient any medicament unless the dentist so orders. If one feels uncertain about the care of such cases as you mention, a physician should be called at once. It may be a simple fainting spell or it may be a serious condition that only quick and effective treatment will overcome.

Dear Miss Pierce:

Could you tell me of a school in Boston, Mass., where girls can go to learn to be dental hygienists, and what the exact duties are?

E. B., Maine.

ANSWER.—A letter to the Forsyth Dental Infirmary at Boston will bring you the information you desire.

Dear Miss Pierce:

Recently I overturned a bottle of AgNO_3 , so that some of the solution splattered over the milk glass slab of my cabinet and in the porcelain wash basin. The glass slab is slowly turning yellow and the wash basin already has brown stains on its surface. Is there any way of removing these stains, especially from the wash basin, which now presents a dirty appearance?

Dr. M. B. R., Brooklyn.

ANSWER.—In the August issue of *The Dental Digest* you will find a method for the removal of silver nitrate stains from fabric. We suggest that you try this for your bracket and wash bowl. If this does not work, you can try corrosive sublimate, a diluted solution. Extra

precautions are recommended where this poison is used, especially to keep it from the fingers and to remove all traces of it from any dish or other container, as well as from the articles cleaned. Javelle water also is used for the removal of such stains; apply it until the color of the spot disappears, then soak the stained place with an ammonia solution. In removing such stains, avoid the use of oxidizing agents.

Dear Miss Pierce:

Kindly write a form letter than I can use in sending out notices that the time is at hand for the patients' coming to the office for their periodic examinations and also something that I can use for an appointment card, both of them simple, as my clientele does not warrant anything else, and, too, I have a new assistant.

Dr. L. R., Wisconsin.

ANSWER.—We suggest the following:

The customary interval of six months (or any other time) having elapsed since your last call, I shall be pleased to give you an appointment for an examination.

Telephone

Very truly yours,

OR

I find that six months (or any other time) has elapsed since the dental operations I did for you were completed. Desiring to assist you in keeping a healthy mouth condition, I shall be pleased to have you arrange an appointment for an examination.

Telephone

Very truly yours,

APPOINTMENT CARD

.....
Patient's Name

Your next appointment will be

On at

Telephone

SAMUEL J. WHITE, D.D.S.
Address

To this can be added the following, if desired:

A charge will be made for broken appointments unless cancelled a day in advance, or, If unable to keep your appointment, kindly give early notice or charge will be made for same.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

The Educational and Efficiency Society for Dental Assistants, First District, New York, had its first regular meeting for the season of 1928-1929 on Tuesday, October 9th.

This meeting was of great interest to all present as Dr. I. S. Miller spoke most impressively on *The Value and Possibilities of a Broad Health Viewpoint*. Misses Robina McMurdo and Mae Quinn read reports of the splendid convention at Minneapolis in August, which made the dental assistants realize how much they were contributing to the public at large and encouraged them to put forth all their efforts for the advancement of the profession.

The Society presented a health and poster display at the Arts & Industries Women's Exhibit at the Hotel Astor, New York, during the first week in October. They presented also clinics at the Hudson County Dental Society, October 5, 1928, and another at the Eastern District Society, November 1, 1928.

The Clinic Club meets on the third Monday of each month, October to May, inclusive. Many interesting classes are being formed for this year, and assistants who are members of the Educational and Efficiency Society should endeavor to attend, as it is a sure means of progress for the assistant, the dentist and the office.

The Library is equipped with good literature pertaining to our respective duties, which may be borrowed.

Dental assistants employed in ethical offices are requested to become members, as they will be given opportunities to realize the ambitions and ideals which progressive dental assistants should have. Ethel Meyerson, Chairman of Membership Committee, 1220 Bryant Avenue, New York, will be glad to give any information.

At the regular meeting to be held on Tuesday, November 13, 1928, the Society will have a full demonstration and table clinics of the daily routine of the dental assistant in her office. This should prove beneficial to the profession, especially to the assistants. A paper will be given by Amelia J. Bulleid.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive, at the Academy of Medicine, 2 East 103rd Street, New York. It is hoped that members of the profession and their assistants will avail themselves of the welcome which is always extended to them.

Montreal Dental Assistants Association

The first meeting of the season of the Executive Board of the Montreal Dental Assistants Association was held in the office of Dr. G. Franklin, Medical Dental Building, on September 19, 1928. Miss E. Moye, First Vice-President, was appointed Acting President until the next general election.

The opening meeting of the Association was held on October 15, 1928.

Why Professional Education for the Dental Assistant?*

By Helen H. Fitting, Philadelphia Association of Dental Nurses,
Philadelphia, Pa.

Why education for any one? Is it to promote culture? Is it to fit the individual for greater service to humanity? Is it to permit the individual to take his or her place in society? By "society" I do not mean social pleasures or diversions; I mean one's contemporaries in whatever station one occupies in life. Or is it simply for personal gratification?

Education, whether professional, business or purely academic, is the medium which has raised America to its present position. The liberal opportunities for the securing of education have placed the average American in the enviable position he holds today. They have enriched our nation and have enriched us as individuals.

Would professional education for the dental assistant add to her culture, aid her in her work, be of greater assistance in the service to the dentist and his patients, and increase her ability to meet conditions with confidence and assurance? Without doubt I can reply favorably to these questions. Culture—that something that stamps the individual as a personality and not simply a "person"—surely is never acquired without the refining influence that education brings. More efficient service in whatever field one may enter, or, in other words, working with one's brains as well as with one's hands, not simply being a machine but "thinking" one's service as well as performing the motions of work, is never acquired without preliminary training of the mind as well as of the fingers. To be of value in one's environment, to exercise an influence on one's era of existence and mould the accomplishments of whatever activities one may be interested in—in other words to make a mark for one's self among one's fellows—all this can be attained only

* Read before the Fourth Annual Meeting of the American Dental Assistants Association at Minneapolis, Minnesota, August 21, 1928.

through education. Regarding one's personal gratification, that too is to be considered. There is always gratification or personal satisfaction in the knowledge that one has capacity and the ability to do one's tasks well, and that one stands on an equal basis with one's coworkers. That is not vanity; it is the quality that makes for self-respect and the respect of others.

One of the objects of the American Dental Assistants Association since its organization has been to endeavor consistently to promote the greater education of its members. It has in every way possible made this desire manifest and has placed itself on record and petitioned the deans of the recognized dental schools and colleges of the country for the establishment of courses of training for dental assistants. In its annual meeting programs the Association has endeavored to bring before its members topics of an educational value that would not only aid them in their daily tasks, but also inspire them with the ideal that the best service one could render was never too good. The constituent societies as well are all working toward this goal of higher education, and they too are conducting their various activities along educational lines.

Dentistry, the profession which makes it possible for the dental assistant to follow her calling, has for some time recognized that higher education was essential for the carrying on of its health service to humanity, and we all know that great strides have been made in the advancement of dental education, tending to place the dentist on a par with other professional men engaged in the relief of suffering humanity.

The dental assistant, because of her position in the profession of dentistry as a whole and in the office of her employer in particular, has for her chief obligations the interest of the dental profession which she serves and the particular interest of the doctor with whom she is associated. She cannot manifest the right sort of interest in the dental profession, unless she knows something of its aims and ideals, its beginning, its progress, and its desires for the future. This knowledge should be a part of her education. Correspondingly she cannot manifest the right kind of interest in the dental practice which she serves if she is not qualified to understand intelligently what the dentist is trying to do, and what should be done to assist him in making his service the best possible.

My first argument in favor of departments of training for dental assistants in the dental schools and colleges is entirely an unselfish one from the dental assistant's point of view. Under the present method of developing assistants the dentist very often has to choose any one who he thinks will fit the position, and unless he is one of the fortunate ones who happens to find an already well-trained and carefully trained assistant, he spends much time and energy in teaching her the simple details of the daily routine of the office, only to discover after some

length of time that, after all, that particular young woman is not at all suited for this type of service.

The assistant herself enters into this copartnership (I use this statement advisedly, as the type of service involved must be based on cooperation) in the most casual manner. For many it is just an opportunity for employment with a salary attached to it which happens to be presented to them at a moment when they are free to accept it. They would have taken positions around the corner in the bank or the department store just as well had it been available.

Under the present plan, in the overwhelming majority of cases, the securing of an assistant is effected on the hit-or-miss basis, Greco-Roman "catch as catch can," conducted in the dark, without any idea as to where to apply for or secure efficient aid, save through the newspaper advertisements or through the offices of a dental supply salesman or house. Under the college-training plan the dentist would be assured in advance that he was obtaining an assistant who, by her own choice and by the length of study prescribed in the college, had in advance proved her interest and seriousness of purpose in the work she desired to undertake. It is therefore evident, as previously stated, that the argument in favor of college training for the dental assistant is an unselfish one.

Surely, upon completion of this training, when appearing in response to an application for a position, she has already acquired a certain poise and dignity not possessed by the average individual under the same circumstances of an interview with a professional man, and the dentist's opinion is favorable. Upon entering this position there is immediately established a certain *esprit de corps*, or, it might be termed, a certain artcraftsmanship.

While this *entente* or copartnership between the dentist and his assistant would be the immediate result, there would also, as the outcome of this, be bound to be a gradual recognition on the part of the general public of the important part played in the general health program by the dental assistant. We all know that the respect accorded a trained nurse by the doctor's patients originates in the thought that she is an educated individual and therefore worthy of consideration and respect.

The establishing of college departments for the training of dental assistants is happily no longer a shadowy vision. We know what has already been done in this respect, and we anticipate the development of this phase of education by a number of the dental colleges in the not distant future. It is self-evident that there should be a uniform standard of preliminary training. We might call it the groundwork in preparation for the service actually performed in the dental office. There is no denying that we should start out with an equal and standard

basis for our work and from this progress into the various special lines that the dentist we may be called upon to serve has adopted for his own. With a foundation to start from, any particular method can be quickly grasped, any technic can be understood readily, and any condition, or situation can be cared for with intelligence and credit to one's self and the employer.

As it is now, the dental assistant starts out blindly, and even though she may remain for a time with one dentist, she finds herself of little more use than at the beginning when accepting a position with another dentist.

To sum it all up, is professional education for the dental assistant of value? Yes, for it will have given us greater poise, dignity, usefulness, and recognition. We believe in the results of proper training, and we hope that our brief argument will result in greater progress in that direction.





A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

Notes on Dental Anatomy and Physiology and Dental Histology (Human and Comparative), by T. W. Widdowson, Licentiate in Dental Surgery of the Royal College of Surgeons of England; Lecturer on Dental Anatomy and Physiology at King's College, University of London; Late House Dental Surgeon to the Liverpool Dental Hospital; Late Contributing Editor to *Oral Health and Dental Practice*, Toronto, Canada; Author of *The Care and Regulation of Children's Teeth*, *Notes on Dental Surgery and Pathology*, etc., etc.

This is the fifth edition of a work that has already won a prominent place in dental literature.

The elements of histology are first taken up, cell division, the development of the teeth and the growth of the jaws. The anatomy of the teeth is fully and carefully described.

The second part of the book contains a study of comparative dental anatomy—a subject all too little understood by the average practitioner—and ends with the evolution of mammalian teeth.

The author and publishers are to be congratulated on the appearance of the volume. The illustrations are numerous and clear, and the binding makes the reading most enjoyable. As a book of reference it can be heartily recommended.

588 pp., with 348 illustrations and index. London: John Bale, Sons & Danielsson, Ltd., 1928.—A. M. J.

Index of the Periodical Dental Literature, compiled by Arthur D. Black, A.M., M.D., D.D.S., Sc.D., Dean of Northwestern University Dental School.

A new volume of this valuable work has just been received, covering the years 1921-1923. This is the seventh volume to be published and the rest will be eagerly awaited. We have been asked by the publishers to stress the point that, to insure prompt shipment, remittance should accompany the order.

Buffalo, N. Y.: Dental Index Bureau, 1928.—A. M. J.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, OF AUGUST 24, 1912

OF THE DENTAL DIGEST
at New York, N. Y.
State of New York, } ss.:
County of New York, }

Published monthly
for October 1, 1928.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Seeley Vander Veer, who, having been duly sworn according to law, deposes and says that he is the Assistant Secretary of the Dentists' Supply Co. of New York, Publishers of THE DENTAL DIGEST, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

NAME OF	POST OFFICE ADDRESS
<i>Publisher, THE DENTISTS' SUPPLY CO. OF NEW YORK</i>	220 West 42nd St., New York, N. Y.
<i>Editor, GEORGE WOOD CLAPP</i>	New Rochelle, N. Y.
<i>Managing Editor, GEORGE WOOD CLAPP</i>	New Rochelle, N. Y.
<i>Business Manager, L. W. DUNHAM</i>	New Rochelle, N. Y.
2. That the owners are:	
THE DENTISTS' SUPPLY CO. OF NEW YORK	220 West 42nd St., New York, N. Y.
THE AMALGAMATED DENTAL COMPANY, LTD.	5-12 Broad Street, London, England
LEWIS L. FAWCETT	1347 Dean St., Brooklyn, N. Y.
LEROY FRANTZ	Davenport Neck, New Rochelle, N. Y.
HORACE G. FRANTZ	221 Cheyenne Rd., Colorado Springs, Colo.
GERTRUDE L. FRANTZ	221 Cheyenne Rd., Colorado Springs, Colo.
J. HAROLD FRANTZ	1709 North Nevada Ave., Colorado Springs, Colo.
VIOLA F. GOOD	45 Pintard Ave., New Rochelle, N. Y.
DEAN C. OSBORNE	839 St. Marks Ave., Brooklyn, N. Y.
SAD E. L. OSBORNE	839 St. Marks Ave., Brooklyn, N. Y.
JOHN R. SHEPPARD	155 Riverside Drive, New York, N. Y.
JOHN R. SHEPPARD, Trustee for John R. Sheppard, Jr.	220 West 42nd St., New York, N. Y.
RUTH A. P. SHEPPARD	155 Riverside Drive, New York, N. Y.
ETHEL F. TOMB	167 Lake Ave., Newton Centre, Mass.
GEORGE H. WHITELEY	905 S. George St., York, Pa.
GEORGE H. WHITELEY, JR.	121 W. Springettsbury Ave., York, Pa.
J. OSBORNE WHITELEY	905 S. Beaver St., York, Pa.
LILLIAN S. WHITELEY	905 S. Beaver St., York, Pa.

THE AMALGAMATED DENTAL COMPANY, LTD., is a corporation organized under the laws of England, with an authorized capital stock of £2,850,000, ownership of which is scattered over a considerable part of Europe and includes a long list of names unknown to us, and probably a number of banks and other corporations.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

THE DENTISTS' SUPPLY COMPANY OF NEW YORK,

SEELEY VANDER VEER, *Asst. Sec'y.*

Sworn to and subscribed before me this 27th day of September, 1928.

[SEAL]

EMELIE S. SCHOFF

Notary Public, Westchester County

Certificate filed in N. Y. County

Clerk's No. 265; Register's No. 9286

My commission expires March 30, 1929

FUTURE EVENTS

THE INDIANA BOARD OF DENTAL EXAMINERS will meet at 8:00 A. M., November 12, 1928, at the State House, Indianapolis, Indiana, in the House of Representatives Room, for the purpose of examining all applicants with proper credentials. All applications should be in the hands of the Secretary one week before the Board meeting.

For applications, clinical requirements and other information, address

J. M. HALE, *Secretary-Treasurer*,
Mt. Vernon, Indiana.

THE CONNECTICUT DENTAL COMMISSION will meet at Hartford, Connecticut, on November 20-22, 1928, to examine applicants for license to practice dentistry and dental hygiene, and to transact any other business proper to come before them.

For further information address

ARTHUR B. HOLMES, *Recorder*,
80 Central Avenue, Waterbury, Conn.

THE SIGMA EPSILON DELTA FRATERNITY will hold its fourth annual convention at the Hotel Pennsylvania, Philadelphia, Pa., November 29-30, 1928.

Registration will take place at 10:00 A. M. on Thanksgiving Day, at the hotel.

For information regarding the program, hotel reservations, clinics, or any other general information, kindly communicate with Dr. Simon J. Cohen, 1334 Pine Street, Philadelphia, Pa.

The December Meeting for Better Dentistry of THE FIRST DISTRICT DENTAL SOCIETY OF NEW YORK will be held again this year at the Hotel Pennsylvania, New York, on December 3, 4, 5, 6, 1928, this being the fourth of these meetings.

The same plan of subscription will prevail this year, one fee admitting a subscriber to all lectures, clinics, etc.

The clinic attendance at these meetings is limited, and subscriptions are registered in advance, giving the audience opportunities to avail themselves of all material the clinicians have to offer.

Among the lecturers and clinicians who have accepted invitations are: Doctors A. D. Black, C. N. Johnson, H. B. Pinney, Chicago, Ill.; Sherman L. Davis, Bloomington, Ind.; Robert R. Gillis, Hammond, Ind.; Edward H. Jackson, P. C. Lowery, Detroit, Mich.; Carlos H. Schott, Cincinnati, Ohio; Edouard M. Hall, Kansas

City, Mo.; Robert H. Ivy, Emerson R. Sausser, Philadelphia, Pa.; Percy R. Howe, Benjamin Tischler, Boston, Mass.; Raymond A. Albray, L. Thomas Asche, Newark, N. J.; and the Logan Clinic Club of eight members, Portage, Pa.

An Oral Hygiene Luncheon will be held on Wednesday noon, at which time Dr. Percy R. Howe, President of the American Dental Association, will speak, as well as Dr. Harry Pinney, the Secretary. Other speakers will be Drs. John B. Watson and William Welch of Johns Hopkins.

Topic Discussions will be held on Thursday afternoon, and the General Clinics on Thursday evening.

The Manufacturers' Club of the American Dental Trade Association and the Independent Dental Manufacturers Association will hold exhibits of the most recent appliances and materials in the Hotel during this meeting.

Address all communications relative to subscriptions to Edith M. Davies, Executive Secretary, 2 East 103rd Street, New York, N. Y.

JOHN T. HANK, *Chairman.*

APPOINTMENTS TO DENTAL CORPS OF THE U. S. NAVY

A competitive examination for appointment to the Dental Corps of the U. S. Navy will be held December 3, 1928, at the U. S. Naval Medical School, Washington, D. C. Appointees must be citizens of the United States, between 21 and 32 years of age at the time of appointment, which may be one or two months later than the date on which the examination will be completed. Candidates must submit with their applications certificates of birth and citizenship, or graduation from an accepted high school, or the equivalent, and from a dental school, and two or more letters testifying to good habits and moral character. Applications should be addressed to the Chief of Bureau of Medicine and Surgery, Navy Department, Washington, D. C. The examinations will be both theoretical and clinical and the usual duration is from seven to ten days. No allowance can be made for the expense of persons appearing for examination.

E. R. STITT,
Surgeon General, U. S. Navy.

THE COLORADO STATE BOARD OF DENTAL EXAMINERS will hold its semi-annual examination in Denver for five days commencing December 4, 1928. For information, address

WM. H. FLINT, D.D.S., *Secretary,*
Littleton, Colorado.

THE BOARD OF DENTAL EXAMINERS OF CALIFORNIA will conduct an examination for license to practice dentistry, commencing at 8:00 A. M., December 8, 1928, at the Native Son's Hall, 410 Mason Street, San Francisco, Cal.

Complete credentials, together with the fee, must be in the hands of the Secretary at least twenty (20) days prior to the examination.

O. E. JACKSON, *Secretary,*
1624 Franklin Street,
Oakland, California.

THE IOWA STATE BOARD OF DENTAL EXAMINERS will meet at the State University of Iowa College of Dentistry, Iowa City, Iowa, December 10-13, 1928, at 9:00 A. M., for the purpose of examining applicants for license to practise dentistry in Iowa. An examination for dental hygienists also will be given.

For further information and application blanks, address the State Department of Health, Capitol Building, Des Moines, Iowa.

All papers and credentials must be filed with the Department at least fifteen days prior to date of examination.

THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES will hold its annual meeting at the Palmer House, State and Monroe Sts., Chicago, Ill., on Monday, December 17, 1928, at 4:00 P. M. Reports of the officers will be given, a Board of Directors will be elected, and such other business transactions as should come before the Association will be taken up.

All members are urgently requested to be present.

By order of the Board of Directors,

J. G. REID, *President*,

D. M. GALLIE, *Vice-President*,

E. W. ELLIOT, *Secretary*.

THE SUPREME COUNCIL, ALPHA OMEGA FRATERNITY, will hold its annual meeting at the Copley Plaza Hotel, Boston, Mass., December 24-26, 1928. Please communicate with Dr. Leon Balicer, 2231 Washington St., Boston, for further arrangements.

A. H. MENDELSON, *Supreme Chancellor*,
Medical Arts Bldg., Baltimore, Md.

THE NORTH DAKOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at Grand Forks, North Dakota, January 8-11, 1929. Applications for examination must be in the hands of the Secretary by December 29, 1928.

GILBERT MOSKAU, *Secretary*,
Grand Forks, N. D.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting on January 11, 1929, at the College of Dentistry, University of Minnesota, Minneapolis, Minn. Applications must be in the office of the Secretary by January 1st, 1929.

DR. F. E. COBB, *Secretary*,
601 Donaldson Bldg., Minneapolis, Minn.

THE CHICAGO DENTAL SOCIETY will hold its sixty-fifth annual meeting and clinic January 14-16, 1929.

The Chicago Dental Society wishes to announce its 1929 Annual Meeting and Clinic at the STEVENS HOTEL. Please take notice of change from the Drake

Hotel to the Stevens Hotel with its three thousand rooms and with ideal conditions for staging the yearly classic.

All members of the American Dental Association are cordially invited to attend. Preliminary programs will be mailed to all members of the A. D. A. sometime in December of this year. The program will be divided into eight sections, as follows:

Section I—Operative Dentistry.

Chairman: O. J. Olafsson, 55 East Washington Street.

Secretary: E. J. Krejci, 7060 Clyde Avenue.

Section II—Full Dentures.

Chairman: R. O. Schlosser, Northwestern University.

Secretary: E. C. Pendleton, Chicago College.

Section III—Partial Dentures; Crown and Bridge.

Chairman: Stanley D. Tylman, 185 North Wabash Avenue.

Secretary: W. H. Kubacki, 2949 Milwaukee Avenue.

Section IV—Mouth Hygiene, Children's Dentistry.

Chairman: E. E. Graham, 58 East Washington Street.

Secretary: E. W. Swanson, 25 East Washington Street.

Section V—Orthodontia.

Chairman: B. O. Sippy, 30 North Michigan Avenue.

Secretary: C. R. Baker, 708 Church Street, Evanston.

Section VI—Oral Pathology.

Chairman: E. H. Hatton, Northwestern University.

Secretary: J. R. Blayney, University of Illinois.

Section VII—Oral Surgery.

Chairman: J. E. Schaefer, 55 East Washington Street.

Secretary: Eli Olech, 4259 West Madison Street.

Section VIII—Radiology.

Chairman: E. H. Thomas, 30 North Michigan Boulevard.

Secretary: M. A. Root, 636 Church Street, Evanston.

The Program Committee is under the direction of Frederick B. Noyes, assisted by Stanley D. Tylman, Vice-Chairman; I. G. Jirka, Charles R. Baker and Howard Alexander.

LOUIS E. JELINEK, *President,*

HUGO G. FISHER, *Secretary,*

185 North Wabash Avenue, Chicago, Ill.

THE IOWA STATE DENTAL SOCIETY will hold its Sixty-seventh Annual Meeting at Cedar Rapids, Iowa, May 7-9, 1929.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its sixty-first annual meeting at Rochester, N. Y., on May 15-17, 1929.

A cordial invitation is extended to all ethical dentists who are members of state societies to attend. The Society will be pleased to extend a cordial welcome to all ethical Canadian dentists also.

For information with reference to the exhibits, write to E. G. Link, 226 Cutler Bldg., Rochester, N. Y.; clinics, John T. McIntee, Chairman, Cutler Bldg., Rochester, N. Y.; literary exercises, etc., A. P. Burkhart, Secretary, 57 East Genesee St., Auburn, N. Y.